

Bob Cooper's

NOVEMBER 15 1998

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

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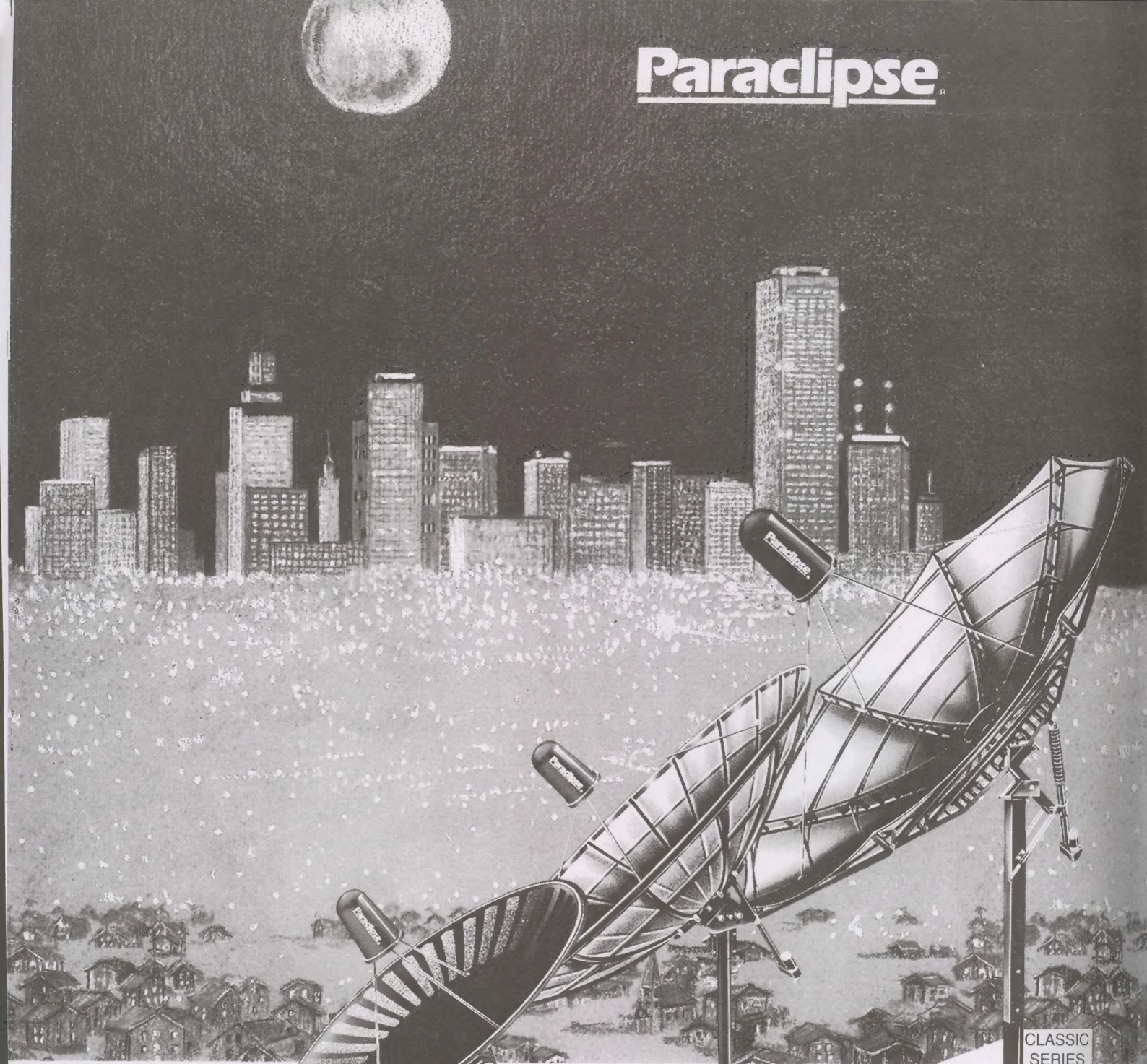
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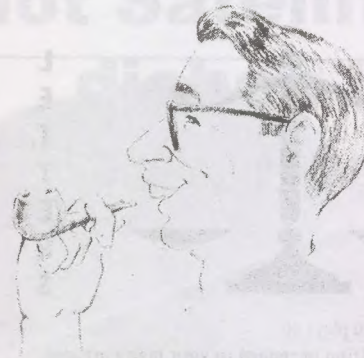
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COOP'S COMMENT

People who worry that the already precarious financial world of Australian pay-TV might be further pushed towards endangered species status if Irdeto is broken now have a new concern. How long will it take for the European based Irdeto piracy technology to take root in Australia? Irdeto is hanging by a thin thread and if Europe is any sort of model, piracy cards will spread like wildfire in Australia as well. CTD for October 30th reviewed the status of pay-TV



November 15, 1998



busting technology and the bottom line is not encouraging.

Historically, pay-TV busting starts at the 'technonerd' level; people with special skills, access to unusual equipment, and lots of time on their hands setting out to see if they can beat the system. When (not if) they are successful, they begin to share piracy secrets with a few associates; usually fellow technonerd. It is at this point that someone with technical and business skills becomes aware of what is happening and sees in pay-TV busting a business opportunity. This 'level 3' person is the one that most worries firms such as Irdeto.

The first person to turn technonerd pay-TV conditional access busting technology into a sizeable business was one Ed Grotzky (shown above). Ed entered the home satellite world in 1981 selling dish system attachments. By 1982 his company (Arunta) was building state-of-the-art high dollar analogue receivers. And in 1983 (when the photo here was taken), Arunta was a nicely established, profitable business with 70+ employees in Phoenix, Arizona.

Videocipher analogue scrambling hit the American industry hard in 1985 and Grotzky was badly hurt along with most other manufacturers. But he knew people who were working on "busting" the scrambling system and spent weeks camped on their doorsteps as they got closer and closer to full time, reliable, piracy. Six months after scrambling, a bitter and ready-for-revenge Grotzky was down to 6 employees and hiding behind a stack of unpaid invoices. When one of his technonerd friends finally cracked Videocipher, Grotzky closed down Arunta and disappeared in a puff of smoke. It is quite easy to get lost in North America and Grotzky had been planning his 'demise' for nearly a year.

Travelling under false identification, wearing disguises, Ed spent tens of hours every week on aeroplanes carrying all of his luggage under his arm. The most important piece - a very early model briefcase PC in which resided all he needed to turn out piracy pay-TV cards on the spot. All business was in cash, rounded off to the nearest hundred dollars. In the first six months of being a pirate, he wrote creative rules for an entirely new form of enterprise distributing more than 5,000 cards. He was never caught, but died 22 months after it all began in a job-related 'accident'. Modern day Ed Grotzky "clones" scare Irdeto to death because they are bright, clever and cautious. And the first one ought to be stepping off a plane at Sydney any day now.

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-ON THE COVER-

Consumerism. Many of us cannot properly define a consumer. But major CE (consumer electronics) manufacturers are showing us how consumerism works and packaging satellite hardware for consumer appeal. (p. 14)



LETTERS

And the band plays on

"I am writing in regard to your many articles mentioning the UEC 642. I was one of many technicians who attended the training course at Belrose and have worked with industrial electronics for 13 years. From what I saw at Belrose, I consider the UEC 642 to be a quality IRD. Russell Futter demonstrated how easy it is to disassemble the unit for service. It took two minutes to remove the power supply board and approximately five minutes to totally disassemble the balance of the unit. He deliberately dropped one IRD from a height of more than 300mm onto a solid table top without even managing to effect the picture. Also he placed a book on top of a running IRD for about four hours which eventually reached a temperature of 40C. We were told that at the factory one unit has been tested in an environmental chamber to over 100C, and yes the screen went blank but when the unit dropped below 100C the unit functioned normally. I believe there is far more to competition than just the price of the IRD. UEC has ensured that there are many trained dealer / service agents across Australia, for their well designed receiver. Customers realise that the cheapest product is not always the best. You only have to look at the variation in pricing between brands of televisions to see that people are prepared to pay more for a quality product. I believe the UEC will remain competitive outside of the RTIF world. For obvious reasons, I have chosen to be anonymous, not just 'name withheld upon request.' I have a good guess as to what is happening and I have probably wasted my time writing this letter."

Anonymous person with a fax machine

SatFACTS has pointed out problems we found with the UEC 642, most of which have now been corrected. We have equally pointed out problems with the "competitive" Panasonic unit, not all of which have yet been corrected. We tried raising the temperature on the UEC to 100C (the boiling point of water - we might note) and found it stopped producing pictures at a case temperature of 45C. At 90C some solder joints began to bubble so we quickly cooled it back down. That it could be heated to the same temperature as boiling water and not suffer permanent damage seems quite unlikely to us. But then if Russell Futter said they did it at the factory, it must be true.

We expect the next model Panasonic to be a UEC!

Unfamiliar jargon

"A work colleague allowed me to read his September SatFACTS. After 25 years in radio and TV transmission and the last 3 in GSM cellular sites, the acronyms used in satellite TV are difficult to understand. Any help?"

Denis Wood, Dentech Services
GSM terminology confuses us!

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

NOVEMBER 15, 1998

Last warning: This year's close flyby of Leonids meteor shower scheduled to pass earth 19.30UTC November 17th, just in case your favourite satellite hiccups.

Fashion TV. Perhaps it's not bare breasts and butts, but it comes close. 24 hours per day, direct from the world's leading fashion design houses and their Paris studio to a TV set in your living (or bed) room. On AsiaSat 2, in digital, FTA until at least January 15th. Numbers? Vertical 3796(.2) with Msym 2.533, FEC 3/4. At present, this is one very weak signal so good luck! (See tuning notes, p. 30.)

BBC World, badly injured on its new 4143.5/1006.5 Vt PAS-2 assignment that began testing October 1, has extended original service on PAS-2 California Bouquet (3901/1249 Hz) "until early December." Original BBC and PanAmSat "joint" announcement of move had them on horizontal polarity but in truth they are trying to make a go of it on vertical. The 3743.5 transponder is shared with China's CCTV Bouquet and for whatever reason, they cannot seem to get the "power sharing" right. Either the new BBC Bouquet is down in the mud or CCTV is degraded. Nobody's happy about this situation and BBC is pressing hard on PanAmSat to find them a new location. Updates? Try Napa Teleport (operator on duty) at 1-707-251-1101. Or contact the BBC direct (Tony Troughton, Chief Engineer) at +44-181-576-2415 / fax +44-181-576-2225.

Latest Optus sacrifice to the pay-TV via-satellite-Gods. Try Danny Piccin (tel 0412-323-704). He has replaced Emanuel Varipatis who replaced who replaced The best way to get 'out' of Optus these days is to be promoted to head of "Optus Vision Satellite." Piccin has little new to say about how, when or why OV on satellite will debut but agrees, "*It will be after Christmas.*" Which Christmas???

Optus response to threat of Irdeto piracy (see p. 30, here)? Considering upgrading Irdeto card, reworking software (more "bits") to make it "harder" to crack. Of course this means all existing Austar, Foxtel and Optus cards would have to be replaced at typical cost of US\$18 each not to speak of new software burn in period to work out inevitable bugs. Spending perhaps US\$6 million to shut down a few hundred (or few thousand) "unofficial" cards? Hardly seems like a worthwhile expenditure.

Aurora update. "Official" now - SE and NE zones will stay B-MAC until May, Imparja starts 10 December, NE zone starts 26 February, SE zone 12 March. Reason? "*Divicom uplink multiplexer's incompatibility with Irdeto CA is legendary.*"

Sky NZ digital currently operating only on 12.391 (Optus B1, Vt) although IRDs load with linking instructions to 12.546, 12.519 and 12.421. At most, seven NDS CA programme channels load but fewer than 7 may actually be operating. IRDs in "sample" quantities only, initial shipment of up to 12,000 *may* have been diverted elsewhere (in any event, they are late in arriving). Sky advising existing analogue subscribers "*We'll have all 20,000 current analogue decoders swapped for new digital decoders by early December.*" Very unlikely; the first changeover to digital will affect the analogue equipped TAB sites so that the present analogue TAB service on 12.421 can be turned off and replaced with digital channels. There are reports of some IRD design problems (possible radiation interference with normal TV reception is one) and these may be real cause of delay.

NHK Joho close down of PAS-2 analogue service has left many with no service. New address and contacts are NHK Joho Network Inc., International Development, 9-23 Kamiyama-cho, Shibuya-ku, Tokyo 150-0047, Japan; fax +81-3-3460-5188 and telephone +81-3-3460-5188.

NBC audio hum? Try left hand channel (thanks Ernie Wright!)

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Seventh-day Adventist satellite baptism

"It may interest readers that during October / November the Seventh-day Adventist group used PAS-2 for world-wide linking of lectures originating at Berrien Springs, Michigan. Unfortunately there has been a great deal of frequency and polarisation hopping as they struggle to find the best coverage system for their hundreds of scattered sites. I do not know the status of this for future broadcasts but the latest downlink information can be found on <http://www.amcdiscovery.com.au>."

David Hudson, Pages Road, Timaru, NZ

Indeed, there have been problems, perhaps created by the critical overloaded condition of PAS-2 pending successful turn-on of PAS-8. They began on 3939/1211Vt; using PowerVu in FTA at Msym 7.000 and FEC 3/4. In a memo circulated to participants October 8, Communication Director Ray Coombe wrote, "The strength of signal from this transponder is obviously not enough. Some of you are getting signal lock but low quality, most are getting nothing at all. We understand most have cross checked with other PAS-2 signals and verified the dish plus equipment is functioning properly. We trust in the Lord at this crucial time a satisfactory transponder will become available." There is reported to be an extensive plan for more telecasts during 1999 and you can contact Ray (Coombe) at telephone 61-2-9847-3333 or fax 61-2-9489-0943. The current series was scheduled to terminate November 15th and they were on PAS-2 3966.5/1183.5 Vt as we go to press (typically 0300 UTC).

Can't get there from here

"I am new to satellite TV and trying to tune in a Nokia MediaMaster DV3 digital receiver by connecting it to the SCART or other jacks on the back of my Echostar LT 8700. SCART to SCART does not work - can you help?"

David Brown, Tasmania

Scart connects baseband video, audio and some switching circuits between satellite receivers and either VCRs or TV sets. You cannot interconnect the Nokia to the Echostar using the Scart leads to "share" the L-band feed from the dish with both receivers. Some receivers allow you to loop through to feed a second with the L-band line, and lacking that, an L-band rated 2-way splitter feeding signal to both receivers but LNB power backwards from only one to the antenna is the alternative.

Industrious fellow

"I started with a 3.7m Andrew dish and an ancient KLM brand receiver from the states. I hooked it all up with a \$40 cable from Av-Comm and was instantly hooked on satellite TV. Subsequently I bought a house with excellent look angles, and now have 2.4 - 3.7m C-band dishes and 1.6 - 2.4m Ku systems. My city has a high ethnic population, and I believe when dish systems come down to the \$1,000 mark, there will be plenty of commercial / consumer business here. In my spare time I built a radio station (5YYY) including a home-brew X-band STL and 100 watt PA. This has graduated from a wonderful hobby to regular work."

Roger Jordan, Whyalla, South Australia

These are the "good old days" those of us who survive will recall with fondness a decade down the road when it isn't fun anymore.

HARDWARE EQUIPMENT PARTS

UPDATE

NOVEMBER 15, 1998

PAS-8 launch. It went off on schedule November 4 by Proton rocket from Kazakhstan. Bird has 24 C and Ku transponders based upon Space Systems/Loral FS 1300 design, including high power Ku for Australia, Asia with reach to west coast USA (for 2000 Olympic games coverage). PAS-2 is a Hughes design so the side-by-side satellites will not exactly be twins and we should not expect identical performance. Discovery advises, "*One of the conditions of Discovery moving from PAS-2 to PAS-8 was that PanAmSat ensures the footprint would be the same (on both birds). We have specifically mentioned New Zealand and the South Pacific where we distribute Discovery Channel.*" See other concerns on p. 29, here.

More launches. The first of a trio of (CD quality) radio only satellites, Afristar, lofted successfully by Ariane at 22.16UTC on October 28th and is scheduled from 21E. This L-band service is being supported by 2 million "seed" receivers developed specifically for this new service; we expect there to be lots of receive system innovation for these L-band satellites by the launch of number 3 later in 1999. Asiastar is scheduled to 105E as early as January and then our fun will begin. We'll have technical reports in future issues. Other - ChinaStar 8 to 115.5E is scheduled for Long March launcher during January (but probably delayed). With high power C and Ku aboard, the 30 dBw footprint comes close to northern Australia (3.4 - 4.2 GHz). Express A3 to 80E (5 Ku and 12 C-band) is now scheduled for September 1999 but the CIS record of late for timely launches is poor so don't hold them to it.

SMS receivers now being employed for Austar. Several people asking for the PIN number to take this IRD on an expedition away from Austar to see how it performs. Can anyone supply the installer's pin number?

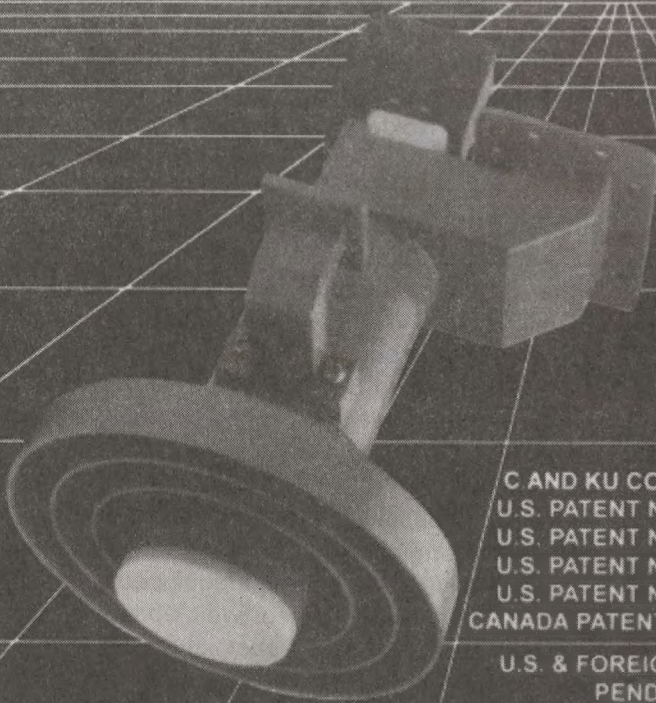
Digital in, garbage out? Major problems facing those who wish to take digital data stream from satellite IRD directly to data-stream input on new HDTV (high definition TV) sets. Problem one - getting the digital data stream, while still digital, out of the IRD. Nobody yet builds an IRD capable of 'linking' data stream to TV set. Problem two - getting data stream into TV set. First (very expensive!) digital TV sets do not have a data stream interface to take feeds from external sources (such as DVD, satellite IRD). So you cannot get "there" from "here." Answer, ultimately, will be IEEE "1394 firewire" connection, a technique still in embryonic proposal form. Best you can expect today - next year - perhaps year after - is IRD with component video output labelled "S-VHS" that will mate with "S-VHS" input on analogue TV set. New digital TVs with "S-VHS" input are designed around HDTV S-VHS standard, will not accept IRD "S-VHS" component video. Pace DVS-620 being used by SKY NZ digital has S-VHS component output which when mated to S-VHS input on existing (analogue) TV sets will produce video quality approaching (but not equal to) "digital throughput." USA satellite operator Echostar privately showed integrated IRD/digital VCR/DVD player one year ago but the project has been cancelled. And would not have been useful unless there were digital TV sets available with digital input/output connections included, anyhow. The "digital revolution" is still early days.

CAMS? For Irdeto use in Nokia 9200 and 9500 series receivers, or, Via Access (CAMS) for common interface (CI) IRDs - try Joe Ibrahim at (E-mail) <digitalsales@provider.co.uk>

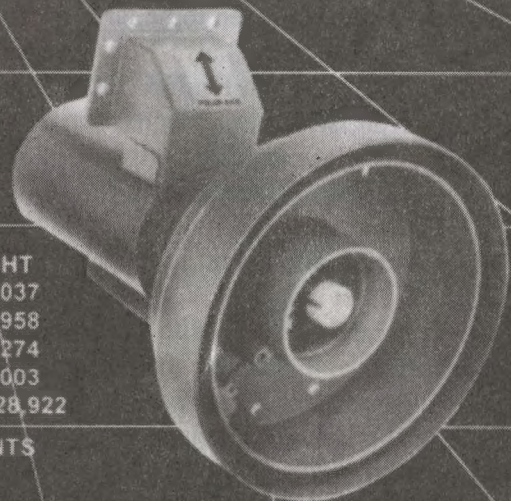
Nokia, Panasat, Grundig, Pace software mods? Again, we suggest www.BAKKERELECTRONICS.COM. There are discussion groups, latest "Dr Overflow" Nokia software, tips to make most popular older and current model digital IRDs work better.



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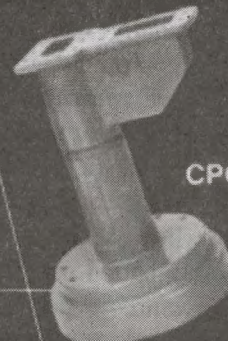
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The 9200S for the Pacific & Asia Arrives for Testing

Nokia fans are a breed to themselves. A Nokia has always been a "thinking man's machine" and perhaps that is one reason why the Nokia is the all time favourite with Europeans who have a passion for making receivers do things the manufacturer never explains in the instruction manual. It was a Nokia d-Box that spilled its guts to a German chap setting the stage for what is now generally accepted to be the complete defeat of Irdeto as a conditional access tool. Nokia's software 'OS' (operating system) has proven to be far more capable of doing 'secret stuff' than any Nokia manual ever explained - proof being the Dr. Overflow upgrades that seem to come out with biweekly regularity. (1) It has been the Nokia IRDs which software hackers have turned into search engines to locate and identify conditional access and other not-published data stream portions which now abound on European based Internet sites.

Hackers, computer buffs with particular skills and interest in getting at the maximum capability of an IRD, believe a Nokia box is the basic starting tool.

Pacific and Asian satellite users are not in the same league as the Europeans who worship the Nokia. First of all, we do not appear to have the same computer language skills. Give us an IRD, even give us a new software programme, and we can probably make it load and operate the IRD. But don't expect us to figure out on our own how to make a 9500 dump the data stream from Austar so the machine can be 'hot-wired' to get around the conditional access system.

Nokia's are basically like the Ferrari created for serious racing. It runs on the edge of control most of the time, and as anyone who has one will admit, every now and again (or every hour or two depending upon how and where you 'drive it') it gets a data stream bit that sends it careening off the road. Nokia users know how to reset the machine when the screen goes blue (or green or red) and refuses to respond to normal RCU commands. The average user wants no part of this funny business

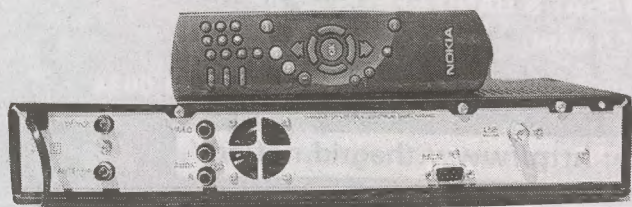
Peter Merrett on the 9200S

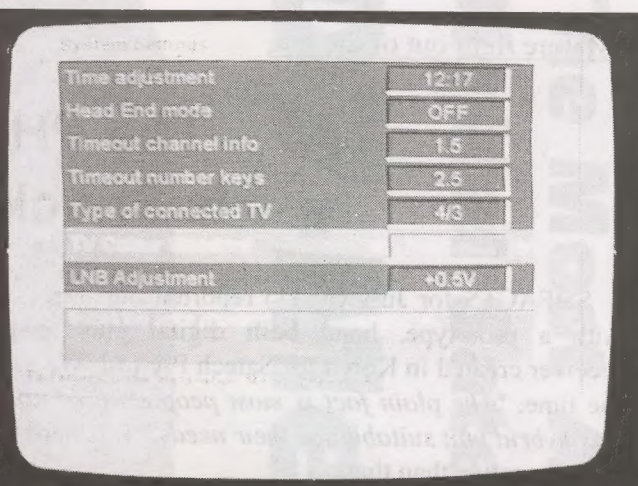
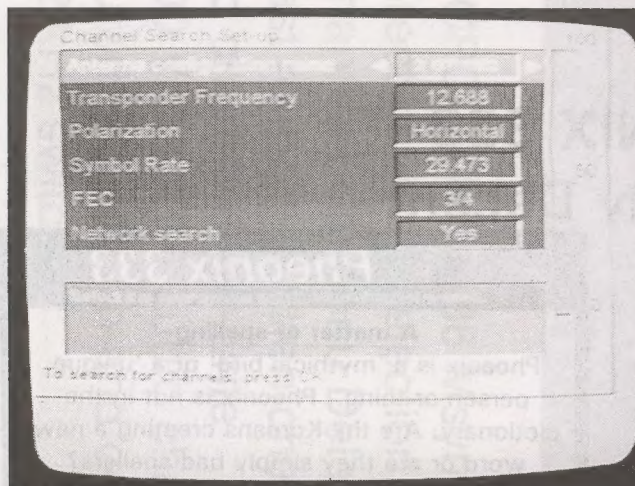
"The DVB2000S prototype was mechanically almost identical to the DVB9500S with the most noticeable change being the front panel display having developed into an 8 segment LED of 3 digits replacing the rather nice (although perhaps too expensive for Nokia) multi-dot LED display of the 9500. The rear panel has lost the SCART connectors and gained an RF modulator and cooling fan. The DVB2000S worked for us flawlessly on NTSC signals offering a software selectable option of either PAL conversion or Multistandard output. On the minus side, loading channels produced a few problems. Some bouquets would only load if you used the 'Advanced Search' option. Overwriting of channels was a problem similar to the early software versions of the DVB9500. Our DVB2000S arrived with a spot where a CAM could be installed. Being the inquisitive people we are, we loaded an IRDETO CAM (which originally came from South Africa in a Panasat receiver long ago) and equipped it with an Aurora smart card. It worked; well, sort of worked. When changing (Aurora bouquet) channels slowly, it worked OK. Is this a receiver problem, a CAM problem, incompatibility between the two? Or basic to Aurora. Who knows."

and would be much happier with an IRD that always works the same way, every time, even if that means giving up some optional features which only the Nokia is capable of handling. The serious user doesn't mind a green screen lockup - he simply pushes "reset" and starts again. The couch potato returning from the urinal to catch the second half of the Rugby match is not nearly as tolerant when he sees a green screen.

The 9200S is the latest free to air (FTA) version in a long line of Nokia machines. Ostensibly it is somehow custom software intended for "Asia and the Pacific." The factory provided two pre-production units for test: one to Peter Merrett at SCITEQ and one to SatFACTS.

9200S rear deck has built-in fan but is sparse on connection options. Front panel is standard Nokia although with "door" open you can quickly see they have stripped out the 8 digit LED for 3 digits.





There are four ways to "search" with the 9200S: (1) Antenna configuration, (2) Channel Search, (3) Advanced Channel Search, and (4) Automatic Install

We had completed our tests before we learned Merrett also had one to evaluate; his observations appear here. To which we attach this postscript: We had independently identified each of the plus and minus observations as Peter indicating neither of us had a unique unit.

What About PowerVu?

This has always been a tender spot for Nokia. A responsible Nokia factory engineer advised SatFACTS way back with V1.63 (that was *the one* that would search an entire satellite and then spit out the frequency, Msym and FEC of everything it found), "*We can do PowerVu but are reluctant to do so until we have worked out an agreement with Scientific Atlanta.*" Nokia took that perhaps overly cautious approach to PowerVu because (1) at the time Pv was not in use for Europe - and that is where their primary market is located, and, (2) they had no competition in the do-everything IRD marketplace. A team of Nokia engineers went to Taiwan to spend time dissecting the PowerVu data stream (SF 32, p. 4) in March (1997) and we communicated with them while there. Yet several versions of Nokia later, it still did not "do" PowerVu.

As Sciteq's Peter Merrett notes separately here, "*some bouquets (with the 9200S) would only load with the advance search feature.*" Our finding was identical - the California bouquet, for example, stubbornly refused to play unless you used Advanced Search and selected the Multinorm option for format. Another troublesome (again, PowerVu) group was the trio of ABC Interchange feeds on PAS-2 Ku. The 9200S would load all 3 (SCPC) services in most search modes but would only play them when loaded in "advanced." Another PowerVu test for the 9200S is the NHK Joho MCPC group on PAS-2. If the receiver is set for NTSC format, it loads them all but shows the PAL 625 line channels as black and white only. Other IRDs don't seem to have a problem handling rapid switching between NHK in NTSC and NHK in PAL (see Phoenix 333 review, here).

Overall Performance

The 9200S continues the legendary "Nokia sensitivity" performing on weaker transponders where other IRDs fail. Almost nothing loads as fast as a Nokia - and this continues with the 9200S version. The video quality, which we used to believe was excellent, is actually not so excellent now that there are competitive IRDs that do the same thing, often as well. The medium blue + white menu boxes are not as easy to read as say the Phoenix 333 or SatCruiser 101 separately reviewed in this issue. If you have to get close to the screen and squint to be certain a 5 is not a 6, keypad entry errors become a challenge. The cooling fan is not a bad concept when the IRD is used in a heated environment (such as stacking units atop one another) but we must remember that the original IRDs employed integrated circuits that were extremely heat sensitive while the latest ICs seem considerably more tolerant of heat. In several weeks of testing, we experienced no time when the 9200S shut down (went to that annoying green or blue or red screen) because of heat - or any other reason.

Who is a Nokia Customer?

He or she is not your average user, possibly not even a true "consumer." Nokia has massive appeal to fiddlers and hobbyists and people who want to drive a Ferrari on suburban streets when the cops aren't looking. But there is a price.

Unless the user is willing and able to dedicate themselves to checking out the latest web site postings for the most recent super-Nokia-software, is capable of downloading software into the Nokia and then putting up with the challenges attendant to having a new operating learning curve, it might be better to stay with a more consumer-friendly IRD. The Nokia legend is that most of their receiver versions will do "it" (whatever "it" may be) but only when you are dedicated to learning how to drive the machine. You probably wouldn't drive the Ferrari to haul the kids to school and likewise buying a Nokia to casually watch CNBC could be a mistake.

The PHOENIX 333 is Shockingly Decent

SatFACTS for July (p. 11) reported our impressions with a prototype, hand built digital plus analogue receiver created in Korea for Satech Pty Ltd. We said, at the time, "*The plain fact is most people would not find this hybrid unit suitable for their needs.*" It is hard to get more negative than that.

The prototype we received for review failed virtually every test we could create, and ultimately Satech agreed with us advising the designers to go back to the designing boards to try again. The hybrid digital + analogue receiver we reviewed had an analogue board stuck in on top of a Phoenix 222 digital board with a shared tuner and power supply. The concept was good, the implementation and detail poorly structured. We urged that if anyone was going to marry digital and analogue into a single container, at the very least they should include a suitable power supply and controller circuit to operate a dish drive. It made little sense to us that you would have D + A in one box but still have to retain an older analogue unit just to drive the dish from satellite to satellite.

In 90 days time, the Korean designers have completely recreated the D + A + D(rive) concept and the Phoenix 333 is the result. A pre-production sample sent to Satech for their evaluation was shipped across the Tasman by EMS to give us the opportunity to run our own checks. We had it one week and can tell you it left here with great regret.

Bluntly, the Phoenix 333 may not be totally perfect but for a first generation design, it comes closer to being perfect than any unit we have ever tested. The digital portion performed flawlessly and the analogue segment so closely duplicated the performance of our "benchmark" Palcom SL7700RP that we could not

honestly tell the difference between the two. Let us put it another way - if we were forced to make a decision between owning any digital and any analogue we wished, or, owning the Phoenix 333, we'd decide on the triple-3.

All on one board

The unnamed June prototype tried to interface the well respected Phoenix 222 digital system with a tack-on threshold extension analogue receiver. The software was complex to use, slow to perform, and a person could grow old, grey and exasperated waiting for commands to be implemented. The net result was a digital receiver that performed, but not as well as a straight 222 digital stand alone, and an analogue that functioned, but no better than a typical low to low-medium cost analogue machine. You could see the great promise intended, flawed by an imperfect marriage of two alien technologies.

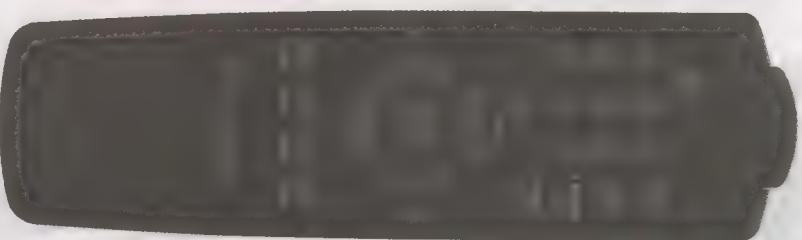
The triple-3 is new virtually from scratch. Compare the top-off, all-is-revealed photo appearing on page 14 in July with the photo on page 10, here. They are as different as night and day. Not only does the triple-3 add the requested motor drive and controller functions (along with a beefed up power supply to handle the current drain of the actuator motor), but the original prototype shot-gun-wedding of digital and analogue has now been smoothly implemented. If a cursory

It will process digital, and analogue, hand you S-VHS or modulated or baseband output through SCART, RCA and 5 pin connectors, operate your motor drive, switch your LNBs and connect to your computer.




The Most Advanced Free To Air Digital Satellite Receiver

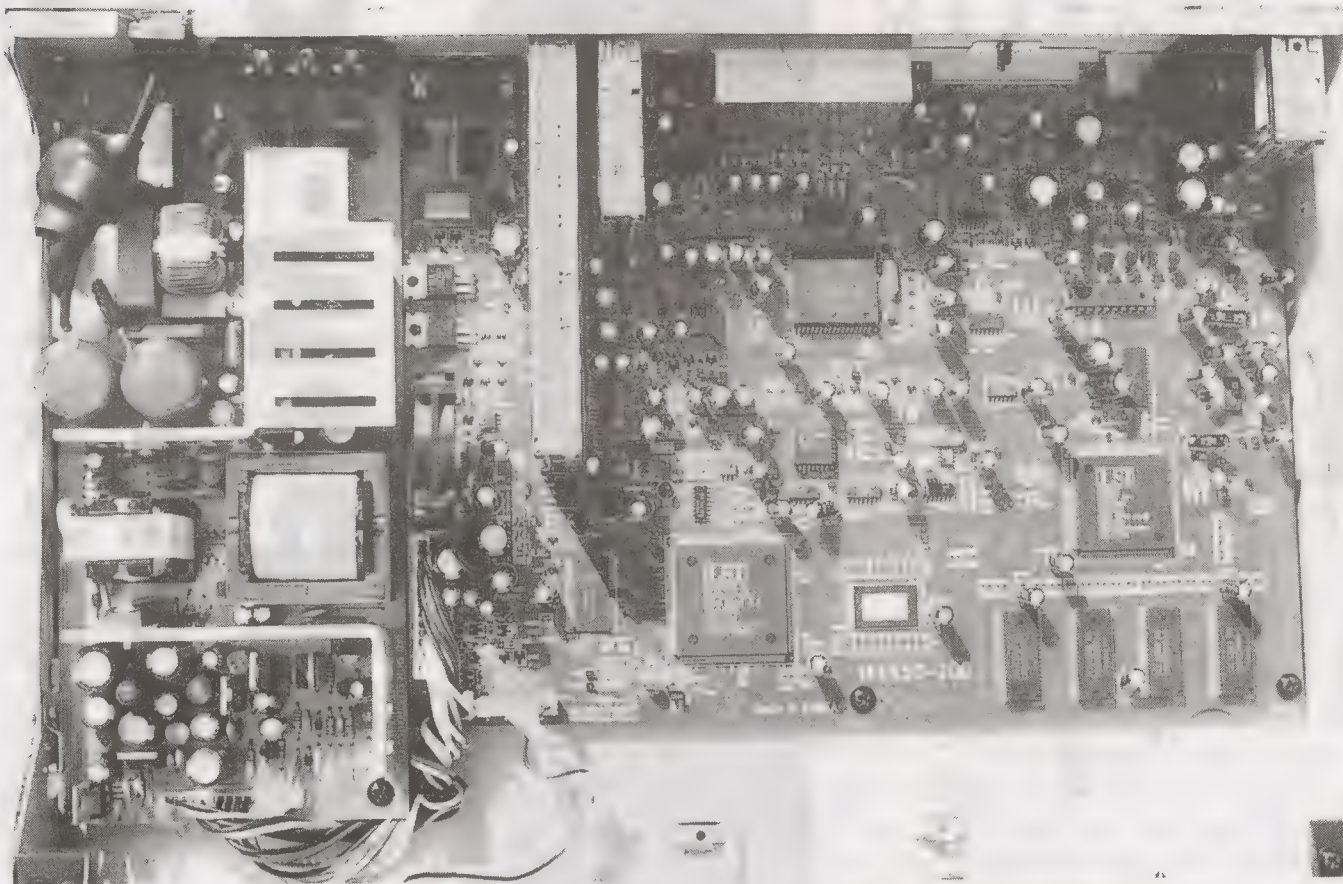
D7-MediaStar



- MCPC/SCPC 2-36 Msym
- Direct channel selection from channel list
- Channel Edit menu Delete, Skip, ON.
- Fast response when changing channels
- No channel over-write
- 200 Video 100 Audio channels
- Automatic search and download
- 22 kHz switch
- PID Menu
- NTSC/PAL Auto switching NO NTSC Glitch
- NTSC converted to PAL-60Hz Free Option
- Audio L, R, Stereo selectable via remote control
- RF Modulator PAL-G, VCR/TV Scarts, RCA Audio/Video, SVHS outputs.
- 90-265VAC-50-60Hz power supply
- Low threshold performance

 MediaStar Communications International
24 Bosci Road
Ingleburn NSW 2565 Australia

E-mail opac@bigpond.com
Tel ++61 2 9618 5777
Fax ++61 2 9618 5077



Completely new and establishing the Koreans as creative innovators on the leading edge of digital technology, the Phoenix 333 puts it all together on one 'master board'.

comparison of the two top-off photos doesn't convince you of this, a quick spin of the remote control unit's keypad will.

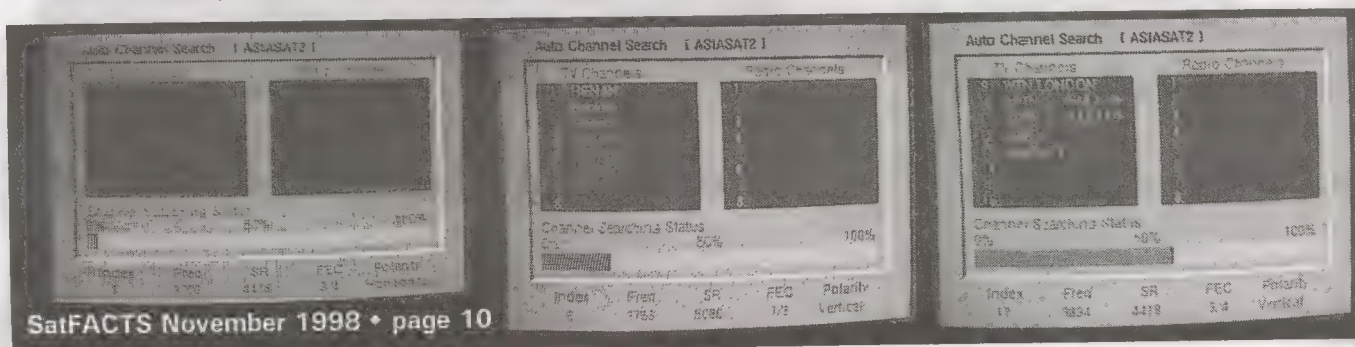
The all-in-one circuit board has now integrated the software functions so the user feels like he is driving a car with a single set of controls. The prototype had a common RCU but left you uncertain you were not actually changing vehicles when you moved from D to A or A to D. There is none of this with the triple-3 and it takes a little adjustment if you have grown accustomed to following one set of instructions for analogue and a totally different set for digital.

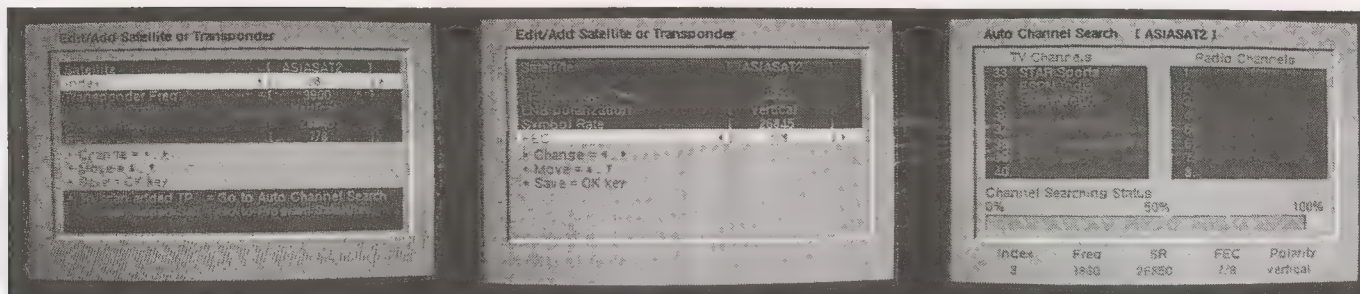
Those staring at the photo above will have noticed what appears to be a *pair* of tuners for the L-band input

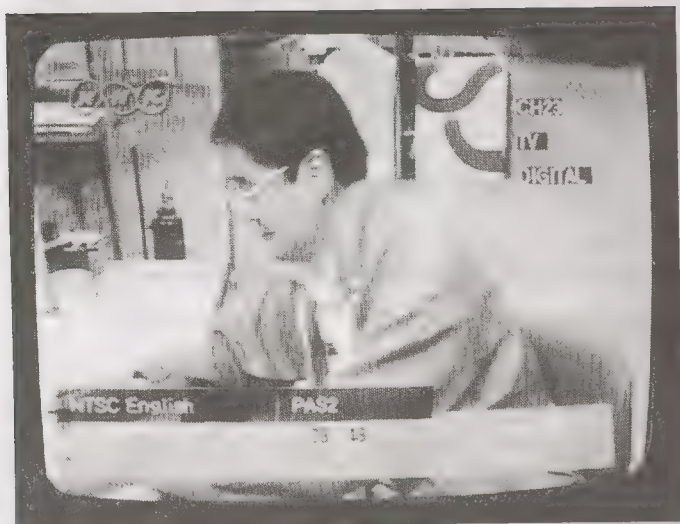
signal line. That's what you have - the back apron has four F-series connectors with a factory loop or link installed. The L-band line from the LNB connects to one open spigot (feeding the digital tuner first, then looping to the analogue tuner) while you can link through to a second receiver with the fourth spigot.

Two tuners - one designed to optimise the analogue processing (479.5 MHz IF output for processing) and one designed for the digital services (480 MHz IF). This turns out to be a smart design move because with separate tuners, the triple-3 is able to tweak performance separately for both formats without compromising on some in between value. The result is state of the art threshold for digital (the tricky one to do) and with 32

'Walking through the satellite,' Phoenix 333 loading up the pre-programmed AsiaSat 2 horizontal. 333 uses SatFACTS Digital Watch tables for master loading; IRD starts at low (3.7 GHz region) end and scans upward a preloaded frequency at a time to check for service levels and loads all it finds.







PowerVu compatible? One quick check is to select NHK Joho and switch between NTSC (English) and PAL (Japanese) on two adjacent digital programme channel memory positions. Each is in appropriate colour.

including (for us) the never previously seen MWD Myawady. What this tells us is the 333 not only has excellent sensitivity but of greater importance, it has software on board that will clean up and display even the most poorly operated services (such as MWD). Very impressive.

Analogue. We run the best, most sensitive, best video quality receiver on our CCTV / RTPi / Egypt services here. We have to - they are subject to low look angle noise and signal fading. We compared the 333 on all 3 services and found it could not be told from the best receivers. Which makes it their equal. We were particularly impressed with the way it cleaned up that tiny permanent Egyptian yellow channel logo in the upper right hand corner of the screen; pure yellow, no

black streaks, no tearing in full 27 MHz bandwidth no less.

What we did not like

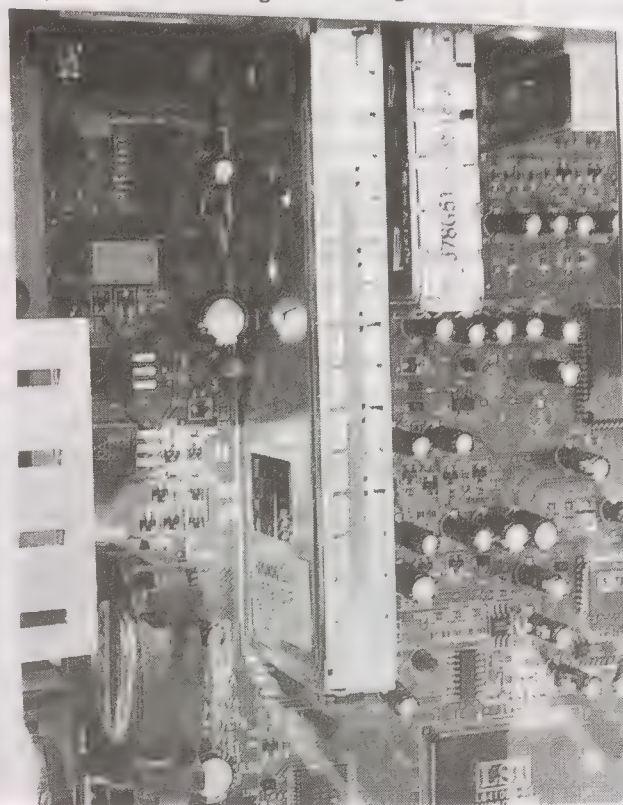
The list is short. When you command from digital to analogue, several seconds lapse (up to 8 in the worst case). And you have to be in digital to operate the mechanical polariser skew control. That's our list.

Our recommendation? If you are shopping for a relatively consumer friendly one-box-solution, this is the one to buy. New yes, but fresh out of the factory it is already a mature product. Pricing? Well, for around \$175 more than you would pay for a digital only machine, you gain state of the art analogue plus dish and feed system controllers. Not a bad deal and more than a thousand dollars below a PowerVu!

Cooling fan (double disc shaped device) turns on when power supply heats up during motor drive operation.



Twin tuners for digital, analogue (see text).



How close is the Cliff?

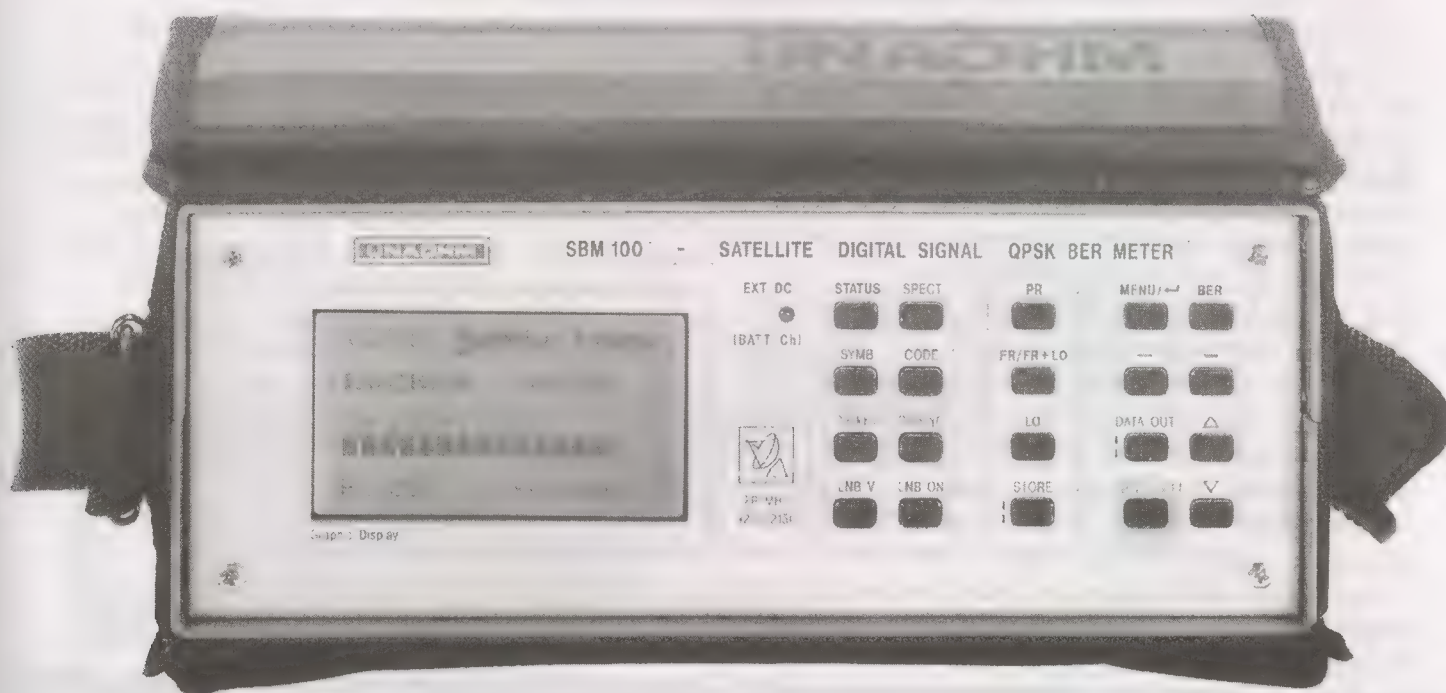
In the brave new digital world, perfect TV pictures can be lost with an increase in interference of as little as 1dB. Bit Error Rate is used to measure link quality, but where do we measure and to what standard?

A Bit Error Rate measurement system that gives clear indication of how close your signal is to total picture loss, or the Cliff Effect, has recently been developed by Unaohm. This system simultaneously measures:

- 1/pre-viterbi B.E.R., displayed both as an analogue Bar Graph and Digital exponential formats.
- 2/Post-viterbi BER.
- 3/Reed Solomon Uncorrected BER.
- 4/Power Index which provides a relative numerical scale of signal power.

Unaohm's QPSK and QAM instrument range starts with the new SBM100, a stand alone B.E.R. instrument. This instrument will power an LNB from its internal gell cell battery, permitting testing of potential dish mounting positions with simply one piece of coax to the LNB.

EP318 offers the traditional range of Unaohm TV features including spectrum display, sync pulse and colour burst, with Digital Channel Power and BER measurement options. EP507 is the Unaohm flagship. It offers a huge range of features with a colour LCD screen, 100KHz Measurement Bandwidth to 2150MHz and BER measurement options. It even uses the colour display to show Green for go and Red for no-go BER.



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Skyvision's SatCruiser DSR-101 Is Consumer Friendly



Earlier this year SatFACTS forecast the expanded availability of digital IRD choices. We also suggested the new IRDs would be cosmetically different (on the outside) but largely identical on the inside. The Sat Cruiser DSR-101 available through Skyvision Australia is such a device. (1)

This Korean designed and built IRD represents state of the art technology with software routines intelligently created with the non-technical consumer in mind. Unlike the Nokia series, for example, that begs a computer engineering degree to properly operate, Sat Cruiser is quickly friendly to both the installing dealer and the "just-show-me-how-to-watch-TV" user.

What the DSR-101 designers seem to have done is to build into the IRD the capability to do some fairly fancy stuff (such as upgrading software through Internet downloads using the hyperterminal programme from Win95), while isolating the advanced features from normal day to day operations. There is a talent here which others would do well to study. The simple day-to-day operations are cleverly separated into their own OS (operating system) in a way that non technical users don't have to stumble through complex, difficult to understand instructions "just-to-watch-TV." The dealer

DSR-101 Specifications

Powering - SMS design 100-270V AC, 50/60 hertz, case operating temperature - 0C to 50C, power consumption - 25W maximum.

RF input range - 950 to 2150 MHz, -65 to -25 dBm

LNB controls - 13/18V, 0/12V switching, DISEqC 1.0, 22 KHz

Video parameters - 4:3, 16:9 aspect ratio selection, 704 x 576 pixel resolution, 1V ptp at 75 ohms

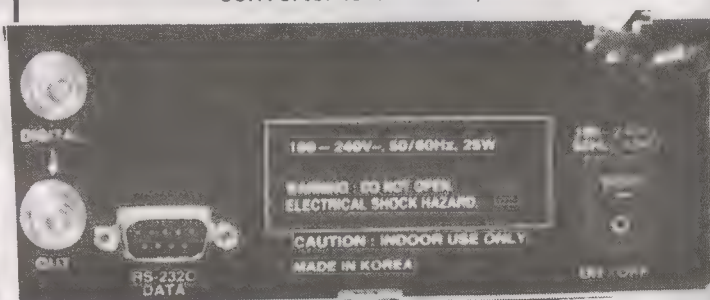
Special - Processes digital teletext (French TV5)

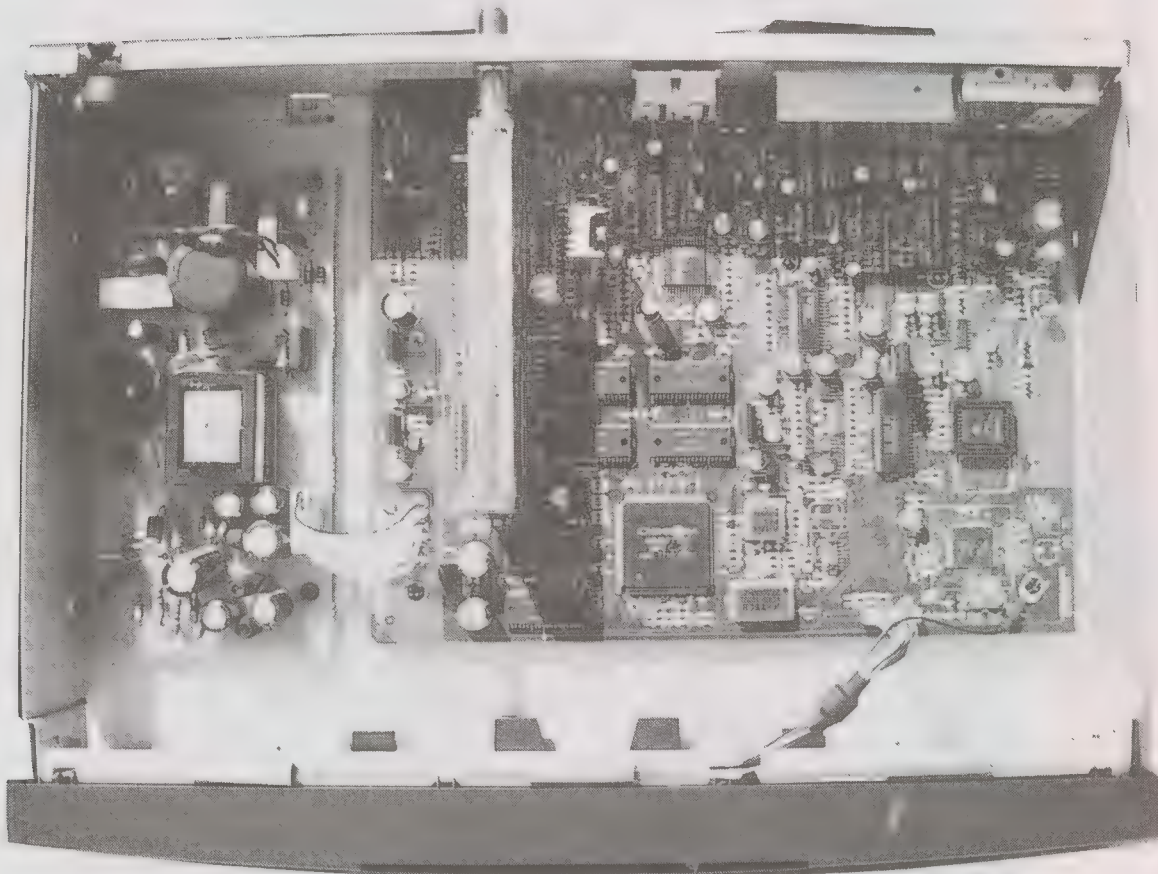
Audio parameters - 32/44.1/48 KHz sampling rate, 20 to 20 KHz stereo, 2V rms at 10K load

Inputs - LNB (L-band) in with loop-through, terrestrial TV antenna, RS-232C for computer/Internet downloading

Outputs - PAL modulated TV output (UHF channels 21 - 69, on-screen menu selected), SCART x 2 (VCR, TV), video (RCA jack), audio left and right (RCA jacks), LNB loop through (out), RS-232C

Displays - EPG (electronic programme guide - when programmer supported), separate TV and audio (radio) menu displays, full control over C or Ku band transmission parameters including PID/PCR entry, does NTSC and PAL including PowerVu (NTSC-PAL converter is 50 hertz)

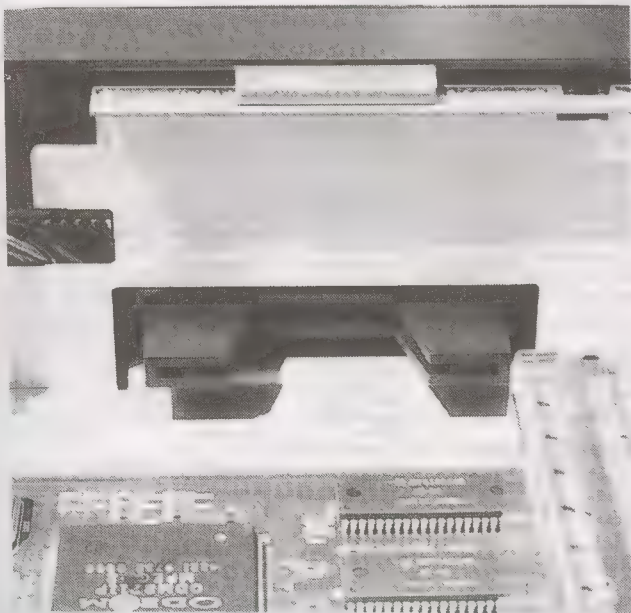




Clean board layout should aid servicing, state of the art digital tuner (left of centre) and no-nonsense SMS power supply with plenty of ventilation room.

in turn will find the DSR-101 has "hidden" capabilities for advanced work which is a form of long term guarantee the consumer will not be stranded with "yesterday's technology" as new software is developed. This is a good concept.

Empty slot does *not* mean a CAM could be added - only that case designers have planned ahead.



How it works

Connections are standard; the L-band input line loops to go on to an analogue or second digital receiver. Video and audio outputs are through SCART or RCA jacks. A power switch on the rear panel (part of the C-Tick approval routine) turns on and the 'Main Menu' pops up. 'Main' leads to installation and here you enter LNB parameters or select them from a preloaded configuration menu. Then back (push 'menu') to installation and select TP (transponder) configuration. A list of preloaded satellites appears and under each satellite a list of preloaded transponders. For example,

Satellite	AsiaSat 2
LNB	05150

No. 001 Polarity Hor **SR 05632** APTN

No. 002 Polarity Hor **SR 05632** WTN Jerusalem

If a new transponder or service has been added, you insert the new information and push search. You can decide with a click of the RCU whether you wish FTA only or FTA + scrambled services memorised (encrypted listings are appropriately preceded with a \$-sign such as \$Star).

SatCruiser / continues page 18



SATECH

Satellite Communication Technology Pty. Ltd.

6/477 Warrigal Road Moorabbin East Victoria Australia 3189

Ph: 613 9553 3399 Fax: 613 9553 3393



Phoenix 333

POWER

P3

DIGITAL / ANALOG / POSITION

Phoenix 333 Features

Features for digital section

1. MPEG 2 Video (MP@ML)
2. MPEG 1 Audio Layer 1, Layer 2
3. MPEG-2 Digital & Fully DVB Compliant
4. On-Screen Display with 16 Colors Full-Res
5. LD Quality Video, CD Quality Audio
6. Variety of LNB polarity control, 13/18V, Q/22KHz tone, Q/12V, Mechanical Polarizer (Skew) and DISEqC LNB
7. RS232C port for additional information service and updating IRD control software
8. 4 digit 7 segment LEDs on front panel display channel information
9. Displays Local Time on front panel, when it is on stand-by mode
10. Displaying signal level to setup the satellite antenna with ease
11. Power recovery function
12. 64-Steps Volume control
13. Powerful editing facilities (PIDs, TV or Radio Channel, Channel Name, Satellite Name/Transponders)
14. TELETXT function (Your TV needs teletext for this)
15. Favorite channel function (Mixed with Digital & Analogue)
16. SCPC/MCPC receivable from C/Ku-Band satellites
17. Capable of receiving unencrypted free digital programs
18. User friendly CSG menu with full function
19. IR remote control
20. Last channel memory function
21. Variable aspect ratio (4:3, 16:9) with Pan & Scan
22. EPG for on screen channel information
23. Parental lock / Installation Lock / Set Lock
24. Multi-Lingual function according to the satellite and program provider
25. Total 2,900 Channels programmable (TV: 1,500 CH & Radio: 1,400 CH)
26. DISEqC 1.1
27. Mechanical Polarizer (Skew) Control for each Satellite
28. Channel Storing for Multi-Satellite
29. Satellites: up to 50 satellites, 999 Transponders
30. Built-in Positioner (High Power Azimuth control (36 Vdc, 5A))

Electric Specifications (Digital Section)

1. Tuner & Channel	
Input Connector	1 x F type with Loopthrough
Output Connector	1 x F type 75 Ohm, to connect an
analogue receiver	
Frequency Range	950 MHz to 2150 MHz
Input Impedance	75 Ohm
Signal Level	-25 to -70 dbm
IF Frequency	480 MHz
IF Bandwidth	55MHz
LNB Power & Polarization	Vertical +13.5V+14.5V
	Horizontal +17.5V+18.5V
22 KHz tone	Frequency 22KHz ± 2 KHz
	Amplitude 0.6Vp-p ± 0.2 Vp-p
Demodulation	QPSK
Input Symbol Rate	2 x 45 Msps
FEC Decoder	Convolutional Code Rate 1/2, 2/3, 3/4, 5/6, and 7/8 with constraint Length K=7
2. MPEG Transport Stream A/V Decoding	
Transport Stream	MPEG-2 ISO/EC 13818
	Transport Stream Specification
	MPEG-2 MP @ ML
Profile & Level	15Mbit/s Max.
Input Data Rate	4:3, 16:9 with Pan & Scan
Aspect Ratio	720 x 576(PAL), 720 x 480(NTSC)
Video Resolution	MPEG-1 Audio Layer 1,2, Musicam
Audio Decoding	Stereo, Dual Channel, Joint Stereo,
Audio Mode	
Mono	
Sampling Rate	32, 44.1 and 48KHz
3. Memory	
Flash Memory	up to 2 Mbytes
Program DRAM	up to 2 Mbytes
EEPROM	16 Kbytes
4. A/V & Data In/Out	
SCART	TV x 1, VCR x 1, Decoder x 1
Q/12V Out	RCA x 1
CVBS Video Out	RCA x 1
S-VHS Out	S-VHS x 1
Analog Audio Out	RCA x 2 (L-CH x 1, R-CH x 1)
	Resolution 16bit DAC
	Output Level 2Vrms Max.
	Volume & Mute Control

Sole distributor for Phoenix Worldwide

SATECH

Satellite Communication Technology Pty Ltd.

**IT'S
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LIMITED STOCK BE 1ST

DVB

Digital Video Broadcasting

33

SATELLITE RECEIVER

and Specifications

Data Interface
RS232C, BAUD Rate 38400, 9Pin D-SUB

RF-Modulator
RF-Connect
Frequency
Output Channel
CH21 ~ 69
V Standard
PAL D/K, PAL B/G, PAL 1

Power Supply
AC Power Switch
Input Voltage
Type
Power Consumption
Mode
Protection
Separate internal Fuse and Chassis
Grounding the input shall have lightning
or electric shock protection.

Physical Specifications
Size (W x H x D)
Weight
Environment
Operating Temperature
Storage Temperature
Positioner
Satellite Position
Azimuth & Skew Control
Output Power
Sensor Type

750hm, IEC169-2, Male/Female
47MHz to 860MHz
CH21 ~ 69
PAL D/K, PAL B/G, PAL 1

Push lock type (toggle)
C90-240V, 50/60Hz (receiver & Postoner)
Linear PWM
230W Max (Below 9W Max for standby)

370mm x 60mm x 280mm
about 3 Kg

-5 oC ~ +40 oC
-40 oC ~ +65 oC

50
6 Push terminal
(M1, M2, M pulse, +5Vdc, GND, Skew)
36VDC, %A max (10minute max, 50%(SMPS)
Reed or Hal Effect Switch

Feature for Analog Section

700 Programmable Channels
2 IF Input (900-2159MHz) / 2 Bandwidth (18/27MHz)
32 Step Low Threshold Extension (3dB)
Audio Mono / Stereo Selectable
64-Steps Volume Control
C/Ku band (Invert/Normal Video format) selectable
4 Video Level Control
4 Decoder mode
GUI Menu (Superimposed with Digital Graphic OSG menu and
background live picture)
0. Powerful editing facilities (Channel Name, Satellite Name)

Feature for Analog Section continued

Mechanical Polarizer (Skew) and DiSEqC LNB
12. RS232C port for additional information service and
updating IRD control software
13. 4 digit 7 segment LEDs on front panel display channel
information
14. Power recovery function
15. Favorite channel function (Mixed with Digital & Analog)
16. User friendly OSG menu with full function
17. IR remote control
18. Last channel memory function
19. Parental lock
20. DiSEqC 1.1
21. Built-in Positioner (High Power Azimuth control (36Vdc, 5A)

Electric Specifications (Analog Section)

1. RF
Input Frequency Range 900MHz to 2150MHz
Input Impedance 75 Ohms
IF Bandwidth 18MHz/27MHz
IF Frequency 479.5 MHz
Input Signal Level -60 to -30dBm
Threshold 6dB Typ. (3dB : low threshold mode, 32 Steps)

2. Audio
Sub-carrier Tuning Range 5.0 to 9.0MHz
De-Emphasis 130kHz/150kHz/230kHz
J-17/50u/75u (Adaptive/Panda-compatible)
IF Bandwidth 280kHz/30kHz/500kHz

Audio Frequency Response 20Hz to 15kHz
Output Impedance 600 Ohms
Output Level 2.0 Vrms Max

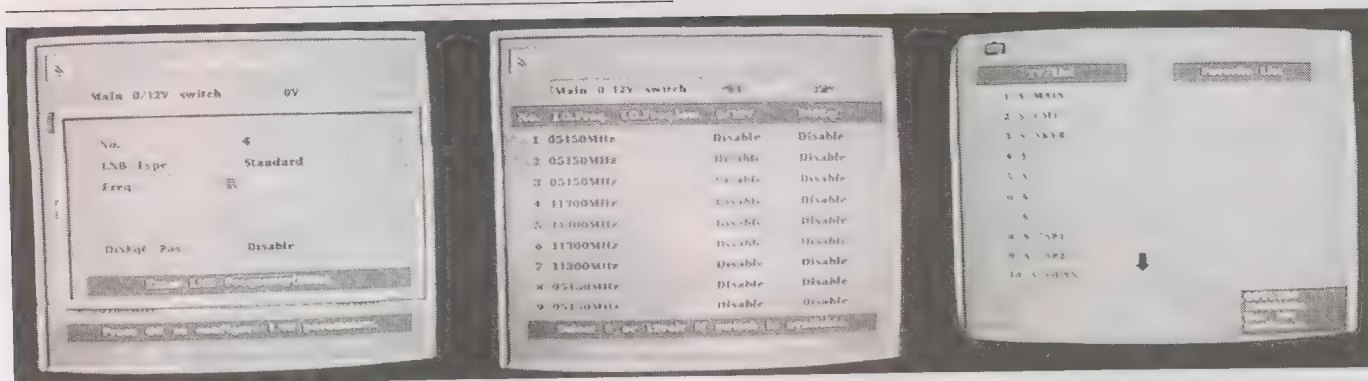
3. Video
Format Invert/Normal (C/Ku)
Selectable Video Output
CCIR Rec 405-1, 625 Lines
75 Ohms
Frequency Response 50Hz to 5.0MHz
Output Level 1 Vp-p Nominal

4. Decoder
Format Base Band
De-Emphasized, Unclamped, Un-Filtered
De-Emphasized, Unclamped, Filtered
De-Emphasized, Clamped, Un-Filtered
75 Ohms
1 Vp-p Nominal

Output Impedance
Output Level

URGENT!

Installers required for
Australia wide
Ku Band Project
Must be fully
experienced and have
own field strength meter
and equipment all
regional and city areas
required.
FAX DETAILS to
Leon Senior at SATECH
03 9553 3393



Loading of new bouquet begins with selection of LNB parameters, local oscillator can be selected from table or if non-standard entered new. Loading is quick, but preponderance of shades-of-blue in factory setting colour palette makes screen slightly difficult to read and tougher to photograph (see text).

The user can select any video or radio channel in memory, add or delete listings, and create a "Favorite List" of each. Parental controls (password protected) are available and of interest, the user can decide between 6 different levels of programming material rating each channel according to its content (and therefore the viewers in the family allowed access to a particular service). There is one quite unique feature - the OSD (on screen display) colour display. You can change the background, insert blocks and icon on screen colour through a range of red, green and blues. Unfortunately for you, the photos shown here were taken with the factory default display colour settings *before* we realised this option was available (and the default colours turned out to be worst choice for photographing the screen)!

Performance

It would be difficult to fault a receiver that does everything the manufacturer claims with reasonably fast speed and state-of-the-art colour display. The sensitivity - one of our quick checks to determine overall performance - is very good. How good? It would make the top 4 in a range that has the PowerVu at the bottom and the Av-Comm R3100 at the top, loading the reduced power level ART/RAI PAS-2 service where other receivers failed. Speaking of PowerVu - the DSR-101 has no difficulty loading and displaying the various Pv

services including those in NTSC. For each transponder in memory there is a "transponder information page" where you will find a relative signal level bar across the bottom.

Something we did not try

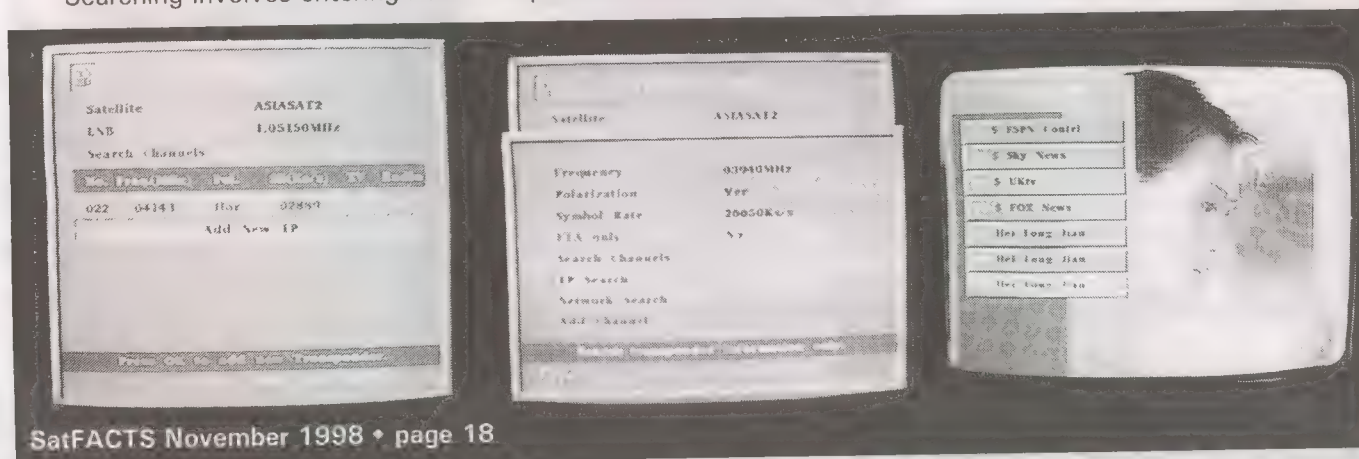
Upgrading the "S/W" (soft ware) requires connecting a PC to the RS-232C connection with an appropriate cable. The PC selects the Windows 95 Hyperterminal programme, you select the file to be upgraded and Zmodem as a protocol from the Transmission menu. The on screen IRD menu asks if you wish to upgrade and you use the 'OK' button on the RCU to command 'yes'. Now you command the PC to send the new programme to the IRD. When loaded, the IRD will cycle off and back on automatically. And if everything goes badly? You can get back to the original factory IRD settings with a simple two step RCU command sequence.

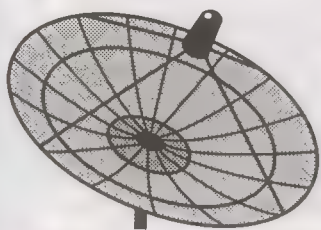
Overall

Good value in a receiver that should not create any operational problems for the typical consumer. The layout is clean, parts are easily accessed for servicing, and the performance is quick and for the duration of our testing, there were no glitches.

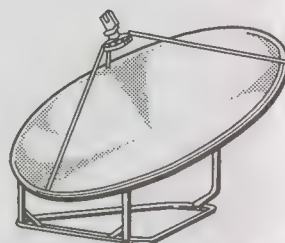
1/ Skyvision Australia at tel 61-2-6292-5850, fax 61-2-6292-5890, E-mail: skyvision@bigfoot.com

Searching involves entering new transponder numbers and telling IRD to 'go'. Images are crisp, clean.

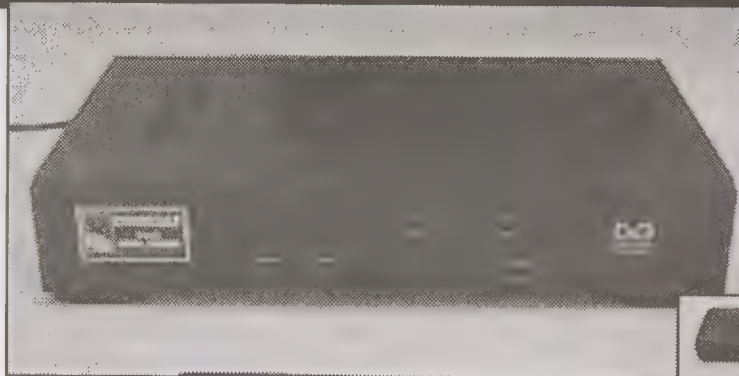




AV-COMM SATELLITE TV EQUIPMENT



FREE TO AIR DIGITAL SATELLITE RECEIVER R3100



Cat # R3100

ONLY
\$1145

Call
for
export
price

FEATURES

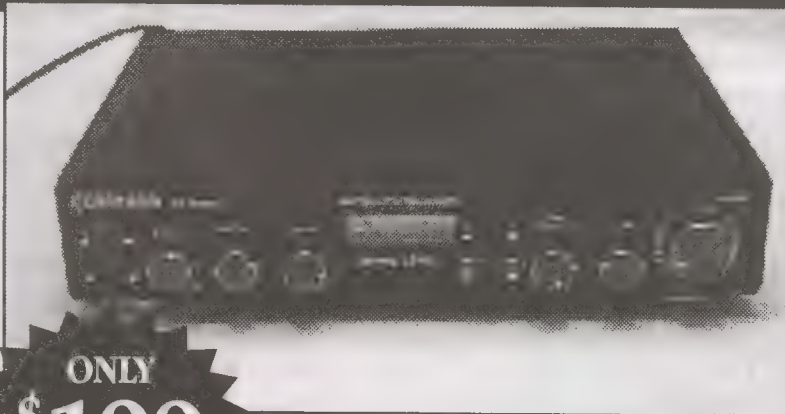
- ◆ 950-2150 extended frequency coverage, C & K band
- ◆ 14/18V LNB polarity selection
- ◆ MCPC & SCPC
- ◆ 22KHz tone switching for dual input ops.
- ◆ Downlink signal margin indicator
- ◆ Dual channel audio
- ◆ Channel "edit" facility
- ◆ 0-12V output for dish selection
- ◆ S-VHS video output
- ◆ Auto FEC detect

DYNALINK MANUAL TUNED RECEIVER R1100

SPECIFICATIONS

- ◆ 950 - 2050MHz IF Input range
- ◆ Low threshold operation
- ◆ Stereo audio
- ◆ 14/18V LNB switching
- ◆ 18/27MHz IF Bandwidth.

Ideal for band scanning, channel monitoring, or as the heart of any home satellite receiving system.



ONLY
\$199

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export price

Cat # R1100

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memo
to the membership from your
industry trade association

SPACE Pacific

Satellite
Programme
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CommittEe



A trade association for users, designers,
installers, sellers of private satellite-direct
systems in the Pacific Ocean & Asia Regions

The origin of home dish systems

A September USA study forecasts the three primary sellers of Ku-band home dish systems (for pay-TV via satellite) will have a combined installation base of 8.61 million systems at the end of this year. In addition to this impressive number (in a universe with more than 63 million homes connected to cable TV), there are 2.1 million C-band 'TVRO' installations.

The 20th anniversary of the start of 'TVRO' (television - receive only, an US FCC term) passed quietly late in October. C-band installations first appeared in private backyards in midyear 1976 at a time when there were only two operating C-band satellites for all of North America (today there are 32) and fewer than 10 active video channels (none more than a few hours daily). The '20th anniversary' marks the date (a week, actually - October 21-27, 1978) when 11 million copies of popular TV GUIDE magazine published a 3 page article describing a pioneering 6 metre (20 foot) dish installed by a private individual to receive these satellite signals. Although TV GUIDE did not precisely identify the location of the dish system, more than 10,000 pieces of mail ended up at that location within three weeks time all asking basically the same question - "*Where can I get one of these?*" Picking up on the TV GUIDE article, the American CBS network's Walter Cronkite 'CBS Evening News' visited the home dish system a few days later and televised an interview with the builder / operator to a typical evening's audience of around 21 million homes. Until these twin publicity bombs dropped, the entire

concept of watching TV from satellites was one of the best kept secrets of the era.

To the 10,000 letter writers the answer was not encouraging.

1) The least expensive commercial system was priced upwards of US\$40,000. Worst yet for those with deep pockets, the *entire* world-wide capacity to produce new terminals was under 100 per month. The largest buyer groups were cable TV systems and TV stations and they typically waited 5 to 9 months from placing an order for delivery. No, this was not exactly a consumer product: yet.

2) Yes, if you had certain technical skills (as the author of the TV GUIDE article did), it was possible to construct from scratch a home dish system, possibly for 'as little as' (US) \$9,000. Unfortunately, few had such talents; you would even build the large dish antenna and receiver from scratch and the very specialised parts required were almost impossible to find since the two firms building commercial systems (Scientific Atlanta and Microdyne) had the total output of the speciality parts firms tied up for years in advance.

There was one other challenge. The US regulatory body, the FCC (Federal Communications Commission), insisted that *before* you installed a TVRO, you go to them for a license. The paperwork was impossible to complete without the assistance of a degreed engineer, and with attachments could run to more than 50 pages of text and drawings. And a 3 to 6 month wait while the bureaucrats in Washington (DC) 'acted'.

MEMBERSHIP IN SPACE

Membership in SPACE Pacific is open to any individual or firm involved in the "satellite-direct" world in the Pacific and Asia regions. There are four levels of membership covering "Individuals," the "Installer/Dealer," the "Cable/SMATV Operator," and the "Importer/Distributor/Programmer."

All levels receive periodic programme and equipment access updates from SPACE, significant discounts on goods and services from many member firms, and major discounts while attending the annual SPRSCS (industry trade show) next March 24 - 27 in New Zealand. Members also participate in policy creation forums, have correspondence training courses available. To find out more, contact (fax) 64-9-406-1083 or use information request card, page 34, this issue of

TV GUIDE

Is TV Doing Justice To Our Legal System?

By Attorney General Griffin Bell

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Oct. 21-27

*Trade-mark, Teletype Corp

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America's Television Magazine



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Revising Columns

Get the Johnny Carson show before it's bleeped!

With a satellite terminal, you can pull in everything from Mexican bullfights to a Redd Foxx nightclub act

By R.B. Cooper Jr.

If you live in a major metropolis—New York City, say—you may be able to pick up as many as nine television stations. If you're in a rural or remote

Cooper and his 20-foot back-yard antenna.

grams in French from Montreal. We get Notre Dame basketball and live sports from Madison Square Garden. We receive programming that's normally avail-

US 'TV GUIDE' for October 21-27 (1978) introduced North America to concept of owning your own satellite dish. Within two weeks, more than 10,000 pieces of mail had arrived asking, "Where can I buy one???"

In August 1979 the first in a long series (still running) of US 'trade shows' was held in Oklahoma City. More than 500 people from 11 countries attended and during the four day event they inspected and touched and took photos of 11 'home dish systems' on display from firms that didn't even exist the previous October. The event also attracted major media attention - again (the American NBC network sent a Tom Snyder crew to attend) and on Christmas eve 1979, Snyder's popular programme was watched by an estimated 24 million US homes who now saw dishes as small as 10 feet producing reception from 25 channels on 3 operating satellites including the first premium movie channel. A second 'trade show' held in Miami (February 1980) attracted 1,200 from 18 countries; a third in San Jose (California) in July 1980 brought in more than 2,500. Most of those attending came back and back again - usually 3 locations per year spread around the United States. At the Oklahoma City show, an attendee could purchase a complete home dish system for US\$6,000; by

Miami the price had dropped to \$5,000; \$4,000 in San Jose and within another year - below US\$2,000. Oh yes, the US FCC threw up their hands in October 1979 and eliminated the legal requirement that each such system apply for and receive a license. By mid year 1984 when no-license TVRO was five years old, the industry was producing more than 100,000 C-band terminals per month with "starter" pricing under US\$1,000. Camper vans and motor homes had 4 foot dishes stowed on top, portable antennas folded up similar to beach umbrellas, and fully equipped homes could access more than 100 channels of TV from a dozen satellites.

Moreover, the phenomenon spread world-wide: Ted Turner announced he was going 'international' with CNN and the first hint of really small Ku-band dishes supported by purpose built 12 gigahertz satellites was in the air.

All of this plus the satellite world we have *today* traces its origins back to that TV GUIDE article in October 1978. Can you spot who wrote it (above)?

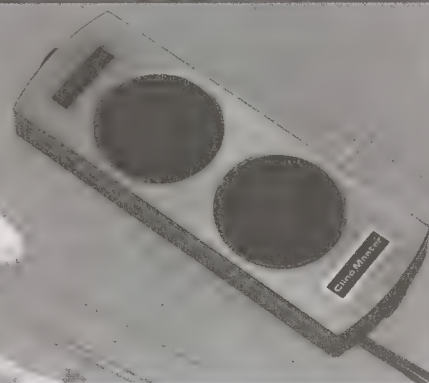
FOR SATELLITE DISH INSTALLATIONS

The SurveyMaster™ combination instrument Sighting compass/Clinometer is the perfect aid for telecom engineers when it comes to measuring angles and directions during installation of cellular base stations and satellite dish antennas.

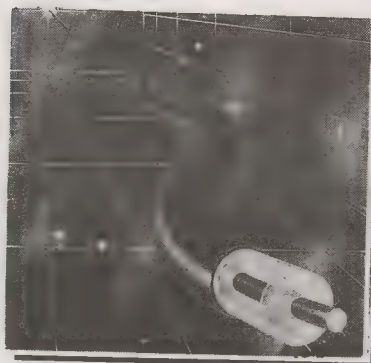
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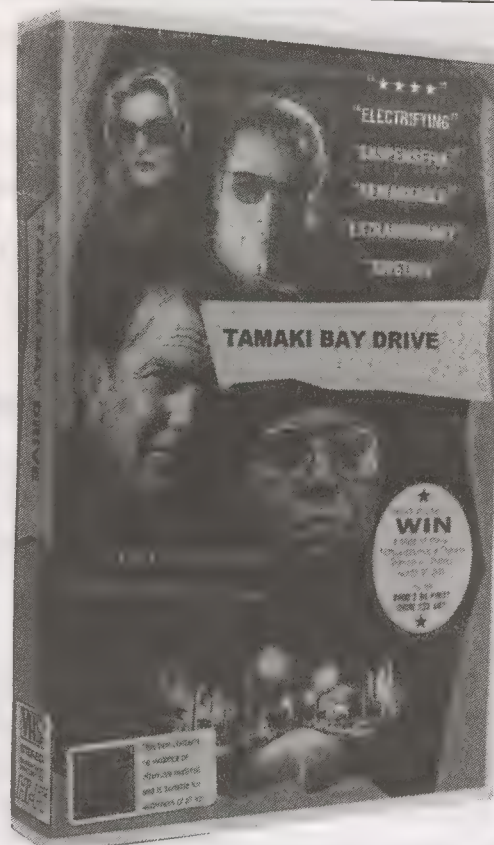
The CABLE Connection



NZ\$75 million gone and mostly forgotten

In August and September 1993, Coop's Technology Digest investigated the promise of fibre optic cable (TV) as then being planned by Telecom New Zealand. A trial system was underway in two Auckland suburbs, 600 homes would be connected and Telecom would gain its first hands-on experience with cable television. Over the next 50 months, Telecom admits to spending NZ\$70 million to install a cable plant passing in front of approximately 70,000 residences. There are many indications the actual amount was twice their admitted expenditure. One year ago (in mid-November 1997) several dozen contractors employing nearly 300 people were given less than one day's notice that the Telecom NZ "First Media" cable TV project was being shut-down. Contractor lawsuits that followed the announcement, seeking more than NZ\$100 million in alleged damages from Telecom, are slowly working their way through the judicial system.

Suppose you or your business took 10% of your net income for the year and invested it into a new business. And then just days or weeks or months before the new enterprise was to open for business, you shut it down and walked away from the investment? If you were a stockholder company, how do you suppose your investors might react? Suppose your new investment was a large, new building and other than moving in, it was ready for occupancy. How would people evaluate

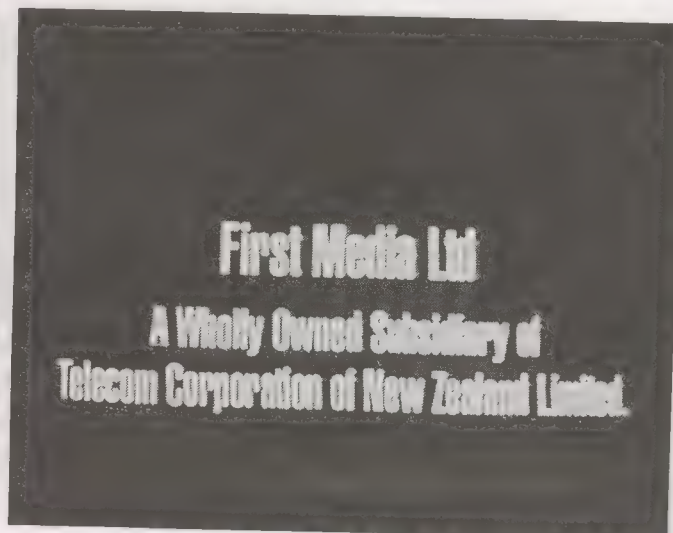


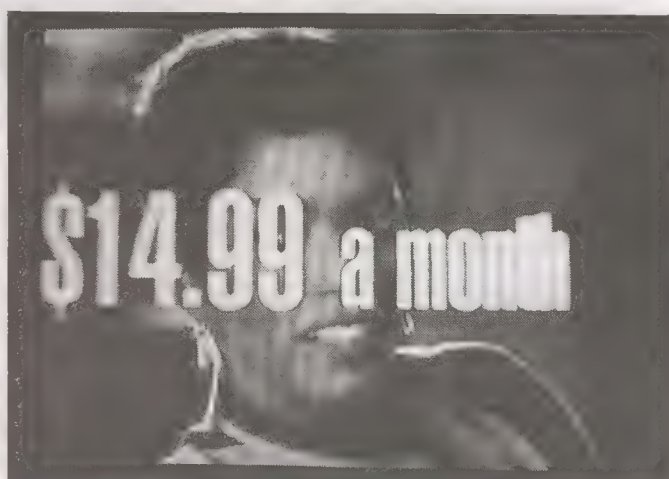
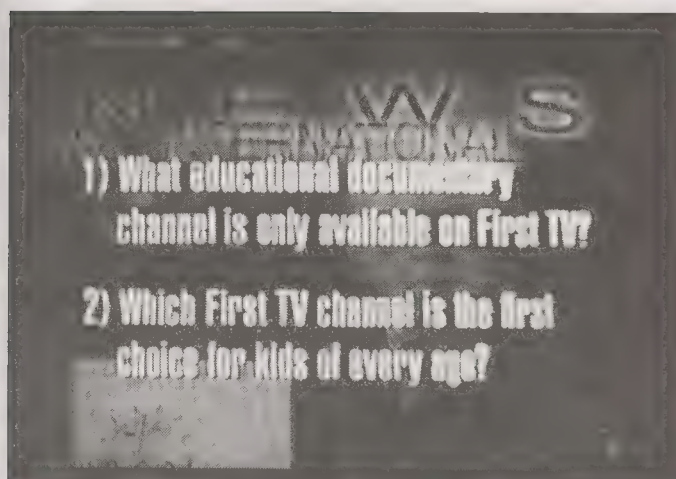
Customised by street address "Introduction to First Media TV" VHS videos were produced and delivered to every household in each region cabled as sales promotional tool.

your business skills for building a new building, making it ready for occupancy, and then walking away from the facility?

Telecom NZ did just that. They spent tens of millions of dollars to build a modern, state-of-the-art cable television system using fibre optic technology. Some number of homes were connected, Telecom is not saying how many. Estimates range from 1,000 to 3,000; in the best case, less than 5% of the homes passed by cable. And it is not that they did not try to increase potential

"First TV" spared no expense in building state-of-the-art fibre optic plus coaxial cable (HFC) cable plant and their free-to-every-door promotional video was straight out of Hollywood (or south Los Angeles).





VHS promotional tape included 'contest quiz' (answers were gleaned from watching the tape - kind of an 'open book' quiz) leading to 'free home trial' of cable TV service. One interesting oversight - the producers of the tape selected American blacks for on-screen presentation, suggesting the American producers knew so little about New Zealand that they believed the country to be populated by those of African origin (right).

subscriber interest. For example, for each street cabled, a customised VHS video tape of approximately 9 minutes length was created. The tape explained the virtues of a cable TV connection, was delivered *free* to homes and flats with incentives included on the tape to encourage both viewing and response. The tape's origins are not clear, but most viewing it are struck that the majority of those appearing in "typical home settings" are black, seemingly American. How such a "*this is our home - with cable TV*" message was supposed to translate to multiethnic Auckland suburbs is not clear.

The real tragedy here is Telecom NZ was never *really* in the cable television business. Management saw the cable system as a *delivery* tool, not an *entertainment* medium. After several years of planning, they began service with only two recognisable names on their cable programme inventory (CNBC and NBC Asia). Even carriage of local terrestrial channels was flawed; Telecom management somehow elected to *not* carry Auckland TV3 and TV4 services which meant subscribers who wanted even the *basic* off-air TV service were forced to have a switch installed; position one for some channels from cable, position two to their aerial for the balance of the (local) channels.

Critics have repeatedly found fault with Telecom's oft-repeated position that it was not in the programming business, and saw its mission as *delivering* high quality

television reception to homes only after someone other than Telecom became responsible for the programming itself. No such saviour ever rode into Telecom on a white horse and so at the end - an end decided by Telecom management far removed from the First Media operation - the cable service was a hollow shell with no filling.

World-wide, telephone companies have proven (time and time again) they make very poor cable operators. The overriding telephone industry philosophy is that they are in the '*electron transit* business' and should take no interest in the '*content* of the electrons'. This is almost the opposite philosophy of the cable television business person who sees his mandate to deliver programming content first, quality second, additional services third. From the outside looking in, the change required in philosophy seems so simple and basic, it is difficult to grasp how unmanageable refocusing obviously must be for born and bred telephone men.

Telecom NZ essentially wasted something greater than NZ\$75 million on an experiment fatally flawed from the outset by a business plan running counter to nearly 50 years of cable TV industry experience. Several hundred kilometres of 'abandoned in place' cable plant is mute testimony that just because you are big and powerful is no guarantee you are smart and capable.

For those who do **NOT** subscribe to Coop's Technology Digest

Issue 98-09-52 (October 30, 1998) contains an extensive review of the "Busting of Irdeto" - a report on how, where and by whom the Irdeto conditional access system has been defeated. CTD clearly identifies hardware and software piracy tools, warns about rip-offs in the piracy world, and explains what all of this is likely to mean to the future development of pay-TV via satellite in the Pacific and Asia.

CTD Subscription? *See page 33 here.*

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 November 1998

BIRD	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
I703/57E	Sky News	4187/963R	1	3/4	5(.632)
		4140/1010R	1	3/4	5(.632)
	CNBC	4018/1132L	1	3/4	6(.000)
	CNBC	3795/1355L	1	2/3	6(.000)
I704/66E	TV5	4055/1095R	4	3/4	27(.500)
		4068/1082L	2(?)	1/2	7(.100)
	Sky News +	3805/1345R	4	3/4	22(.520)
	CNBC	3795/1355L	1	2/3	6(.000)
PAS4/68.5E	Nickelodeon +	4155/955H	1 reported	1/2	24(.000)
	ART/BBC	3980/1170H	2	3/4	5(.632)
	TFC+BBC	3743/1407H	5	3/4	21(.800)
	CCTV	3716/1434H	up to 6	3/4	19(.850)
Ap2/76E	Reuters	3636/1514H	1	3/4	5(.632)
	HMark/Kermit	3720/1430H	4	3/4	19(.510)
	Plus 21/Adult	3787/1362H	1	3/4	6(.110)
	Baccarat	3836/1314H	1	3/4	3(.184)/6(.111)
	TVB-8 +	3849/1301H	4	3/4	13(.238)
	Disney	3880/1270H	3	5/6	28(.125)
	AXN	3920/1230H	up to 8	7/8	28(.340)
	UTV	3920/1230H	6	3/4	26(.662)
Them3/78.5E	UTV/MCOT	3880/1270H	8	3/4	27(.500)
	Reuters	3636/1514H	1	3/4	5(.632)
	Thai 5 Bqt	3600/1550H	up to 8	3/4	26(.662)
Mensat 1/91.5	India Bouquet	12.284.346V	10+	7/8	30(.000)
As2/100.5E (#1)	Chinese Tests	12.295.329H	1TV each	2/3, 1/2	6(.103/.930)
	Euro Bouquet	4000/1150H	6TV, 12r	3/4	28(.125)
	Hubei/HBTV	3854/1296H	1	3/4	4(.418)
	Hunan/SRTC	3847/1303H	1	3/4	4(.418)
	Guan./GDTV	3840/1310H	1	3/4	4(.418)
	Inn Mongolia Zizhiqu	3828/1322H	2	3/4	4(.418)
	APTN A-O	3799/1351H	1	3/4	5(.631)
	WTN Jer/Lon	3790/1360H	1	3/4	5(.631)
	APTN A-P	3786/1364H	1	3/4	5(.631)
	WTN/Reuters	3775/1375H	1	3/4	5(.631)
	Reuters M-E	3770/1380H	1	3/4	5(.632)
	Liaoning/Svc2	3734/1416H	1	3/4	4(.418)
	Jiangxi/JXTV	3727/1423H	1	3/4	4(.418)
	Fujian/SETV	3720/1430H	1	3/4	4(.418)
As2/100.5E	Quinghai TV	3713/1437H	1	3/4	4(.418)
	Henan/Main	3706/1444H	1	3/4	4(.418)
	Sky Racing	4020/1135V	3	1/2	18(.000)
	EMTV	4006/1144V	1TV, 2radio	3/4	5(.632)
	KIBC	3940/1210V	1TV, 4 data	2/3	26(.655)
	STAR/ISkyB	3900/1250V	19TVw/3744	7/8	26(.845)
	BSkyB	3865/1285V	8+	7/8	26(.845)
	HeiLongJiang	3834/1316V	1	3/4	4(.418)
	JSTV	3827/1323V	1	3/4	4(.418)
	Shaanxi/QQQ	3813/1337V	1	3/4	4(.418)
	Guang GXTV	3806/1344V	1	3/4	4(.418)

Receivers and Errata
Any NTL compatible FTA?
Feeds-FTA SCPC
Asia-Europe feeds-FTA SCPC
FTA
FTA?
Sky News 24 hr. sport. feeds FTA?
FTA SCPC
Testing, reported FTA for now
Last reported FTA
Irdeto CA
FTA
FTA SCPC - May be inactive
PowVu typ CA; Kermit temp FTA
Was to be PowVu CA; not active?
FTA
PowerVu CA
PowVu CA
Occ service, some FTA. test?
Irdeto CA - some FTA- off air?
Irdeto CA - some FTA - off air?
FTA SCPC
FTA - may not be operating
Philips CA - some FTA?
FTA (mainland only beam)
FTA
FTA SCPC
FTA SCPC
FTA SCPC
FTA - #1 Chinese. #2 Mongolian
FTA SCPC
Mostly CA SCPC, some FTA
Some FTA SCPC
Some FTA SCPC
Some FTA SCPC
FTA SCPC
FTA SCPC
FTA SCPC
FTA SCPC
FTA SCPC
NDS DVS211 CA (ch.3. occ. FTA)
PowVu CA-very poor signal level
FTA 1 video ch: ZakNet data CA
NDS CA (Pace DVS211)
NDS CA (Pace DVS211)
FTA SCPC
FTA SCPC
FTA SCPC
FTA SCPC

BIRD	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(As2/100.5E)	Fashion TV	3796/1354V	1	3/4	2(.533)
	Eastern TV	3785/1365V	5	3/4	18(.000)
	Myawady TV	3766/1384V	1	7/8	5(.080)
	STAR/ISkyB	3744/1406V	35TVw/3900	7/8	26(.845)
	Star TV Sports	3700/1450V	5	3/4	27(.500)
Cak1/107.1E	Indovision S-band	2.536, (.566, .596, .656)	up to 8 per transponder	5/6	20(.000)
Sinoat 1/110E	Shanghai TV	4106/1044V	1	2/3	6(.200)
C2M/113E	Mega TV	3780/1370V	5?	3/4	27(.500)
	Unknown	3820/1330V	6	3/4	26(.661)
	MTV	3860/1290V	1	3/4	6(.198)
	RCTI default	3455/1695H	1	3/4	8(.000)
	Star Indovisi'n	3500/1650H	20w/3580?	7/8	26(.850)
Them 1/120E	ITV Thailand	3760/1390V	up to 8		
	Thail. terrest.	4120/1030V	up to 6	2/3	27(.500)
API/138E	Reuters	3732/1418V	1	3/4	5(.632)
	CNNI + Cart.	3980/1170V	2+	3/4	26(.000)
Optus B3/156	Aurora	12.595V	10+, 9 radio	3/4	30(.000)
	Aurora	12.407V	10+, 9 radio	2/3	30(.000)
	Optus Vision	12.438, (.626) H	8TV	3/4	29(.473)
	Austar/Foxtel	12.438, (.626, .688)	20TV, 11 radio	3/4	29(.473)
Optus B1/160	Aurora test	12.377H	5+	2/3	30(.000)
	Sky NZ test	12.391, (.418)V	7 + 7	3/4	22(.500)
PAS-2 169E	GWN Perth	12.265V	6TV, 7 radio	1/2	16(.200)
	Telstra Bend.	12.300V	2	1/2	21(.997)
	IHUG (NZ)	12.408V	0	3/4	5(.333)
	Unknown	12.448H	unknown	3/4	20(.555)
	ABC Interchange	12.629, (.638, .646)V	1 TV each	3/4	6(.980)
	Mediasat	12.655V	1TV	1/2 & 3/4	6(.610)
(#2)	HK PowVu	4148/1002V	up to 8	2/3	24(.430)
(#3)	NBC HK	4093/1057V	5 typical	3/4	29(.473)
	JET Singapore	3962/1188V	2	1/2	13(.740)
	ESPN USA	3860/1290V	7TV, 2 data	7/8	26(.470)
	RTL-Syzuka	3805/1345V	2 reported	3/4	19(.998)
(#4)	Middle East	3778/1372V	4	3/4	13(.331)
	Service 1	3761/1389V	1	3/4	6(.620)
	BBC + TFC	3743/1407V	5	3/4	21(.800)
(#5)	CCTVPowVu	3716/1434V	4 typical	3/4	19(.850)
	Feeds	4189/961H	1 or 2	7/8	6(.600)
	TCS-Singap.	4183/967H	2	1/2	6(.620)
	ITJ-Jap.Tel.	4174/976H	1	3/4	5(.632)
(#6)	ART/RAI	4151/999H	3TV	3/4	5(.632)
	Feeds	4138/1012H	1	3/4	6(.620)
(#7)	NHK Joho	4035/1115H	5TV, 1 radio	3/4	26(.470)
	7-day Adven	3966/1184H	1	3/4	7(.000)
	PAS-2 feeds	3939/1211H	2 (NTSC)	2/3	6(.620/7.498)
(#8)	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)

Receivers & Errata
Temp FTA- see notes p. 30 here
PowVu CA -#5 FTA; off-air?
FTA SCPC - Hard to load!
NDS CA (Pace DVS211)
NDS CA (Pace DVS211???)
RCA/Thompson IRD. may not have programming on stream
FTA SCPC
Unknown CA. may not be active
CA & FTA test: may be inactive
FTA. may have been test only
FTA. strong in NZ
Pace(DVS211-Thomson) CA
unknown-reported FTA
unknown-reported FTA
FTA SCPC
CNN (only) FTA?
CA. \$50 smart card required
CA. \$50 smart card required
Pgm chs mixed within Austar bqt: CA: sold separate from Austar
DGT400 CA except #12 and 24
CA. may be inactive
NDS CA. tests 12.391 primary
PowVu CA (D9234)
PowVu typ. CA (D9223 only)
Internet data: some video tests
No service table: may be data only
format PowVu. nominally FTA. recent changes
FTA. occasional service. feeds
PowVu. mostly CA. some FTA
Philips mux format FTA
PowVu CA
PowVu CA: avoid #8.9 w/92231
Test - unknown origin
FTA -0hard to load
occ feeds. FTA SCPC
PowVu: CA and FTA (BBC#3)
FTA (# pgm chs varies)
Test cards. may be feeds
PowVu FTA MCPC
occ feeds. FTA SCPC
FTA MCPC. 2 chs. weak signal
FTA SCPC
1 CA (D9234). 4 FTA
FTA for Net 98
FTA (NBA basketball. NTSC)
Some CA. some FTA (NTSC)

SatFACTS Digital Watch: Supplemental Reference Data / November 1998

PAS-2/169E	Disney	3804/1346H	3	5/6	21(.093)
	Discovry Sing	3776/1374H	8	3/4	21(.093)
	Satcom I-6	3743/1407H	6	7/8	19(.465)
1702/177E	AFRTS	4177/973L	8TV, 12r.+	3/4	26(.694)
	Thai Bouquet	12.6150H	3TV	1/2	17(.800)
1701/180E	TVNZ Gennet	4195/955R	1 (CA)	3/4	5(.632)
		4186/964R	BBC/Gennet	3/4	5(.632)
		4178/972R	1 (CA)	3/4	5(.632)
		4170/980R	APTN-Tokyo	3/4	5(.632)
		4120/1030R	1	3/4	5(.632)
(#9)	RFO-Canal+	4095/1055R	up to 7TV, 5 r.	3/4	27(.500)
	SPN Nauru	4081/1069R	1	3/4	4(.730)
	Baccarat	4028/1122R	1	3/4	2(.702)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	TVNZ TL	3854/1293R	1	3/4	5(.632)
	TVNZ	3856/1294R	1	3/4	5(.632)
	TVNZ	3846/1304	1	3/4	5(.632)
	10 Australia	3765/1385R	6	7/8	29(.900)

PowVu (D9234) CA
PowVu (D9234) CA
PowVu (D9234) CA
PowVu (D9234) CA
FTA, replaced Space TV
DMV/NTL CA: all channels occ. use. FTA irregular around special event coverage
<was MTV Europe>
Canal + (2) CA: rest FTA
FTA SCPC: weak signal
FTA SCPC: inactive?
PowVu CA: network feeds
SCPC mixed FTA. CA feeds
SCPC mixed FTA. CA feeds
SCPC mixed FTA. CA feeds
PowVu CA: #5 occ FTA

Bouquets: MCPC (multiple [program] channels per carrier) MPEG-2 content frequently changes. Primary FTA (free to air) MCPC bouquets are as follows: 1) European Bouquet: (1) Deutsche Welle, (2) MCM, (3) RAI International, (4) RTVE (Spain), (5) TV5 Paris + up to 13 radio (some stereo); 2) Hong Kong PowVu: (5) Ad Hoc NTSC feeds, (6) Ad Hoc PAL feeds: (3) NBC HK (Hong Kong): (1) CNBC Asia, (2) CNBC Australia, (3) National Geographic [English], (4) NBC feeds, (5) National Geographic [subtitled Taiwan]; (4) Middle East [testing]: (1) Antenne 1, (2) Lebanon LBC, (3) ART Australia, (4) RAI Australia; (5) CCTV PowVu: (1) CCTV4, (2) CCTV3, (3) CCTV 9, (4) test bars; (6) ART/RAI: (1) ad-hoc [infrequent] use, (2) AAR/ART, (3) RAI International (with live soccer feeds); (7) NHK JoHo: (1) NTSC Japanese, (2) NTSC English, (3) PAL Japanese, (4) PAL English, (5) NHK Radio, (6) NHK Premium; (8) Cal PowVu: (1) CMT [NTSC], (2) Ad-hoc [NTSC], (3) ART, (4) EWTN + Global Catholic Radio, (5) BBC World [NTSC - to Oct. 31], (6) Bloomberg Financial [NTSC], (7) Golf Channel [NTSC], (8) Animal Planet; (9) RFO-Canal+: (1) Canal+ [Polynesia], (2) Canal+ [New Caledonia], (3) Saudi TV, (4) Abu Dhabi TV, (7) TOM1, (10) TOM2, (13) TOM3 + radio on 5.6.8.9.11.12.14.15.

MPEG-2 DVB Receivers: (Data believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (reviewed SF May 1998). Av-Comm Pty Ltd., tel 61-2-9949-7417
Grundig DTR1100. Mfg by Panaset S. Africa, similar to Panaset 630: out of production, Irdeto capable (see AV-Comm. above)
Hyundai-TV/Com. HSS-100B/G (Pacific) and HSS-100C (China) FTA. Versions 2.25/2.26 good performers. 3.11 currently offered and those with Nokia tuners good performers. Version 5.0 not so good. SATECH ([V2.26] 61-3-9553-3399). Skandia ([V3.11] 61-3-9819-2466). Skyvision Australia ([V3.11, Nokia] 61-2-6292-5850).
MediaStar D7. FTA, preloaded with known services, exc. software (review SF July 1998). MediaStar Comm. Int. (61-2-9618-5777)
Nokia "d-box" (V1.7X). European. FTA, typically German menu, capable of "Dr. Overflow" Internet updates. Caution on this one!
Nokia 2000S (Asia/Pacific). Released Oct. 1998: equipped with CAM/PCMCIA slot, capable of Irdeto, others (factory will NOT supply CAMs at this time); no Asia-Pacific sources known at this time (but readily available through European sources): review 11/98
Nokia 9200/9500/9600/9800. FTA, factory software does PowVu poorly, but has significant Internet software support. Ultimate play-around hobby machine but not consumer friendly. Original V1.63 had unique ability to search entire satellite to locate and list all SCPC/MCPC services: latest (V5.X software) versions compatible with Dr. Overflow (V7.X) software from Internet. CI (common interface) versions available in Europe, do not presently allow Irdeto however. No Pacific/Asia support: help from Av-Comm (61-2-9949-7417), and software from www.BAKKERELECTRONICS.COM.
PACE DVS-211. NDS CA only (no FTA); Sky Racing (As2), Indovision, others. (Sky Racing - Bob Pankhurst 61-2-9451-0888)
PACE DGT400. Original Galaxy (now Foxtel Sat/Austar) Irdeto, FTA with difficulty. (Foxtel Australia 1300-360818).
PACE DVR500. Original NBC affiliate Irdeto; FTA or Irdeto (w/CAM). Similar to DGT400, more reliable. No sources.
PACE "World Box." (DSR-620) Created for NDS non-DVB compliant MPEG-2, including Sky NZ. Info. ++49-211-526-9833.
Panasat 520/630/635. MCPC FTA, Irdeto capable. Out of production: spares from UEC (fax ++27-31-593-370, Russell Futter).
Panasonic TU-DS10. FTA, Irdeto CA. (see SF Aug. 1998). Aurora, Optus DTH. (Antares 61-7-3205-7574; Evcom 61-2-9316-5055).
Phoenix 222. FTA, PowVu. Exceptional graphics, ease of use. (SATECH 61-3-9553-3399)
Phoenix 333. FTA MPEG-2, analogue, positioner. Available late November; review this issue. (SATECH 61-3-9553-3399).
PowerCom. FTA, PowVu, exc. sensitivity. (NetSat 61-2-9687-9903)
PowerVu/PowVu D9223, 9225, 9234. Non DVB compliant proprietary format capable MPEG-2 FTA with optional software. 9234 sold for GWN and NHK JoHo PAS-2, EMTV As2, CA access; others for various CA services. (Scientific Atlanta 61-2-9452-3388)
Praxis DigiMaster 9600 MKII. FTA, PowVu + analogue; SatFACTS review Dec. '99. (Skyvision Australia 61-2-6292-5850)
Praxis 9800 ADP. FTA, PowVu, analogue, positioner. (Skyvision Australia 61-2-6292-5850)
Prosat 2102S. FTA, NTSC + PAL, SCART + RCA. (Sciteq 61-8-9306-3737)
SatCruiser DSR-101. FTA, PowVu, NTSC + PAL. (Skyvision Australia 61-2-6292-5850)
SK888. (aka DigiSkan from Sun Moon Star). FTA MCPC, Irdeto CAM capable. (Skandia 61-3-9819-2466)
UEC 642. Irdeto built-in, for Aurora + Optus DTH. (645 rack mount industrial version) (Nationwide 61-7-3252-2947)
UEC 660. Designed to Optus specs, includes twin-card reader (1 smart, 1 credit) for Optus DTH. (Nationwide 61-7-3252-2947)
YURI HSS-100C. FTA, rebadged Hyundai V.2.27 software custom to Australia (Nationwide 61-7-3252-2947)
IRD Play toys:
MK12 smart card reader, writer. Software not readily available, not recommended. (V.K. Radio Services vkradio@tbsa.com.au)

SatFACTS Pacific/Asian ANALOGUE Watch: 15 November 1998

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BIRD / Location	RF/IF & Polarity	Service	Errata
2DT/55E	3820/1330L	DDI	
I703/57E	3755/1395R	Sun Music	
	3798/1352R	RTNC	
	3980/1170R	AsiaNet	
	4055/1095R	WorldNet	VOA subcar.
	4125/1025R	TVi	
	4175/975L	Muslim	
I704/66E	3765/1385R	Tests	
	4015/1135L	Mongolia	(Secam)
PAS4/68.5E	3743/1407V	RTPi	
	3840/1310V	Home Ch.	(may be off)
	3785/1365H	CNBC	
	3864/1286V	BBC World	
	3910/1240H	Sony TV	Hindi
	3907/1243V	Maharishi	
	4034/1116V	Doordan	
	4085/1065H	CNNI	
	4110/1040H	TNT/Cartoon	
	4113/1037V	Series Ch.	
	4185/965H	MTV	
PAS7/68.5E	3470/1680V	Test Signal	
Ap2R/76E	3760/1390H	AXN card	
Thaic3/78.E	3871/1279H	TVT	
	3760/1390V	Army TV	
	3690/1460V	MRTV	
	3685/1465H	Mynamar	
	3649/1501H	Tests	
	3635/1515V	RAJ-TV	Tamil
	3576/1574V	ATN Bangla	Bengali
	3536/1614V	Punjabi TV	Punjabi
	3476/1674H	ATN	
Exp. 6/80E	3672/1478L	TK Rossija	(north only)
	3875/1275L	VTV4+	(north only)
	3925/1225L	ACT/TB3	(north only)
	4125/1025L	Russia 3	(north only)
ChiStr1/87.5	3875/1275H?	Beijing TV	
CIS S6/90E	3675/1475R	RTRI	
	3875/1275R	Orbita I	
	3916/1234R	RTR II	
	3935/1215R	Orbita II	
MeSat1/91.5	3710/1440H	VTV 1,2,4	

MeSat-1/91.5E	3710/1440H	VTV 1,2, 4	
	3880/1270H	RTM-1	
Insat2B/93.5E	4163/987H	India Metro	
	4128/1022V	Ind. National	
	4070/1080H	India DD9	
	4080/1070V	DD7 (Tamil)	
	3970/1180V	DD9 (kan.)	
	3882/1268V	India DD1	
	3840/1310V	India DD	
	3762/1388V	India DD4	
CIS-S12/96.5E	3675/1475R	ORT	(back again!)
	3825/1325R	Madagascar +-	
	3875/1275R	Test Card	
AsSat2/100.5E	3642/1508H	ERTU Egypt	
	3660/1490V	Test Card	
	3680/1470H	Feeds/Iran	
	3860/1290V	Feeds #	
	3885/1265H	WorldNet	VOA Subcar
	3960/1190H	CCTV4	
	3980/1170V	RTPi	Radio Subcar.
CIS S21/103E	3675/1475R	RTR	
	3875/1275R	Vrk Apt	
PalB2R/108E	4000/1150H	TVRI	
PalC2/113E	4183/967V	TPI/TVRI	
	4160/990H	(France) TV5	
	4140/1010V	Brunei. feeds	
	4120/1030H	MTV Asia	
	4080/1070H	Herbalife	(2100 HKT)
	4060/1090V	TV Indosiar	
	4040/1110H	CNBC	
	4020/1130V	ANteve	(left air?)
	3970/1180V	CNNI	(was 3980)
	3960/190H	SCTV	
	3900/1250V	Malaysia TV3	
	3880/1270H	Aust. ATN7	
	3800/1350H	Gujarati +	
	4042/1408V	RCTI	English subcar
AsSat-G/122E	3675/1475L	Moscow 6	Very powerful
JcSat3/128E	4080/1070V	Test Card	Covers S. Pac
	3980/1170H	Test Card	
Ap1A/134E	3820/1330H	CETV SD	

November Alert

Cakrawarta S-Band transmitting some FTA tests, 'Mosaic 1' channel. Still looking for Sinosat-1 reports from 110.5E. Check Russian bird 96.5E to see if you notice improved levels (and report!). PanAmSat PA5-8 testing from 166E could begin as early as November 20th.

UPCOMING SATELLITE LAUNCHES

JcSat 6 to 154E - delayed to January 14(Ku)
 ChinaSat 8 - Jan ('99) to 115.5E. Ku + C
 AsiaStar L-band radio to 105E (January)
 InSat 2E to 83E - Delayed to "early '99"
 Gorizont 33 - to unknown location January
 AsiaSat 3S to 105.5E - March 1 (C + Ku)
 Orion 3 to 139E - delayed to March 8 (C+Ku)
 Intelsat K to 95E - March 12 (HP Ku)

53.2	55	57	66	68.8	76	78.5	80	87.5	88	93.5	93.5	96.5	100.4	103	105.5	107.1	108	110.5	113	120
S27	2DT	1703	1704	PAS4 PAS7	Ap2	Th3	Ex2	Cs1	St1	Me-1	In2B	S12?	As2	S21	As1 (As3)	Ct1	B2R	Ss1	C2	Th1/ 2
C	C	C	C	C	C	C	C	C,Ku	C	C,Ku	C	C	C,Ku	C	C	"S"	C	C,Ku	C,Ku	C

122	128	134	138	(139)	140	145	146	148	151	152	156	160	161?	166	169	174	177	180	177	148
As-G	Jc3	Ap1a	Ap1	Or3	S7	S16	Ag2	Me2	C1	A3	B3	B1	Mb1	PAS8	PAS2	I801	I702	I701	IF3	Es4
C	C,Ku	C	C	C,Ku	C	C	C,Ku	C,Ku	C	Ku	Ku	Ku	C	C,Ku	C,Ku	C	C,Ku	C	C,Ku	Ku

Ap1A/134E	3900.1250V	CETV2	
	3980/1170V	CETV1	
Ap1/138E	4160/990H	CCTV7	
S7/140E	3675/1475R	Test Card	mod. inclined
S16/145E	3675/1475R	Test Card	high inclined
	3875/1275R	Feeds, tests	high inclined
Ag2/146E	3787/1363H	GMA	poor s. eqtor
Me2/148E	4080/1070H	test card	occ. use
C1/150E	4160/990H	RCTI	tests/entire sat inactive?
PAS2/169E	4000/1150V	CNNI	1/2 Tr format
	3780/1370V	Feeds-Napa	
I802/174E	4166/984R	Feeds	
	4177/973R	Feeds	
I702/177E	4166/984R	Feeds	/KBS Korea
	4187/963R	Feeds	Feeds
I701/180E	3810/1340R	Feeds	
	3841/1309L	RFO	East beam
	3845/1305R	Feeds	inc. USA
	3930/1220R	Feeds	Typ. encrypt.
	3975/1175R	Feeds	
	4060/1090L	Feeds	
	4130/1020L	Feeds	
I513/177W	4187/963R	Feeds	occ. use
	4166/984R	Feeds	occ. use

Oddball Formats

PAS-4/68.8	3785/1365V	Discov. India	rptd. BMAC
PAS-4/68.8	3860/1290H	ESPN Indian	rptd. BMAC
Ap2/76E	3960/1190H	HBO Asia	GI Digiciph2
C2/113E	3930/1220H	Fil. Peo. Net	GI 1.5 MPEG
PAS2/169E	3836/1314H	ABS/CBN	GI 1.5 MPEG
PAS2/169E	3989/1161V	Fox/Prime	Sat 1.5MPEG

Optus B3 at 150E / Ku only

12.688/1388H	Austar MPEG	Irdeto CA IRD	list p. 18 Sept
12.658/1358V	ABC WA	BMAC RABS	until 03/99
12.626/1326H	Austar MPEG	Irdeto CA IRD	list p. 18 Sept
12.595/1295V	Aurora MPEG	Irdeto CA IRD	RABS, card req
12.533/1233V	Net 9, Sky	typ. B-MAC	interchange
12.530/1230V	Herbalife	10-1000UTC	NZ beam
12.470/1170V	(School TV)	analogue	limited hours
12.438/1138H	Austar MPEG	Irdeto CA IRD	list p. 18 Sept
12.407/1107V	Aurora MPEG	Irdeto CA IRD	RABS, card req
12.340/1040H	Imparja	BMAC RABS	until 06/99?

Optus B1 at 160E / Ku only

12.730/1430H	RHEF. NZ feeds	typ FTA anal	occ use
12.677/1377H	QSTV	BMAC RABS	until 06/99?
12.670/1379V	SE ABC	BMAC RABS	until 06/99?
12.644/1344V	SE ABC	BMAC RABS	until 03/699?
12.639/1339H	NE SBS	BMAC RABS	until 03/699?
12.613/1313H	NE ABC	BMAC RABS	until 06-99?
12.596/1296V	Sky Racing	BMAC	
12.576/1276H	ABC Radio	digital	
12.570/1270V	OmniCast		FM/FM
12.547/1247H	ABC feeds	typ analogue	occ use
12.545/1245V	Sky NZ Sport	Vidicrypt	temp to 01/99?
12.520/1220H	Net 9 feeds	typ. BMAC	
12.518/1218V	Sky NZ "1"	Vidicrypt	temp to 01/99?
12.482/1182V	Net 10 feeds	typ. E-PAL	
12.480/1180H	Net 9 feeds	typ E-PAL	
12.455/1155V	Net 10 feeds	typ. analogue	
12.455/1145V	QTQ9		
12.448/1148H	Herbalife	10-12UTC	now off? see B3
12.418/1118V	Trackside NZ	FTA analogue	NZ beam, temp
12.391/1091V	Sky NZ test	NDS MPEG	Pace DSR-620
12.376/1076H	Aurora tests	MPEG-2	CA, inactive?

Using these charts: Microwave signals transmitted down to earth by satellite are intercepted by a parabolic reflector, redirected to a smaller "feed" antenna where they are frequency shifted (down converted) to a lower intermediate frequency (IF) for carriage to the actual receiver (IRD). Some receivers display downlink frequencies at their original microwave (i.e., 3720) while others display the receiver IF (i.e., 1430). Our charts list both for ease of use. C-band IFs are calculated by taking 5150 (local oscillator or LOF) and subtracting the C-band microwave frequency (i.e., $5150 - 3720 = 1430$). Ku band IFs are found by taking microwave frequency and subtracting 11,300 (LOF); i.e., $12,655 - 11,300 = 1,355$. LOF is marked on most LNBs; typically 5,150 for C-band, 11,300 for Ku (note: check Local oscillator frequency - LOF - on unfamiliar Ku LNB/LNBF products; may not be 11,300!). **DIGITAL WATCH LISTINGS** - when "service" is known to be FTA, it is **bold face**. When bouquet is partially FTA, right hand column will have **bold face** notation.

WITH THE OBSERVERS

Concern amongst users of PAS-2 services. PanAmSat is keeping a tight lid on official verification that *some* PAS-2 customers will be moved (not always willingly) to PAS-8. Several cable directed service channels are known to be on the move-list; Discovery confirms they will move to PAS-8 when PanAmSat tells them to do so.

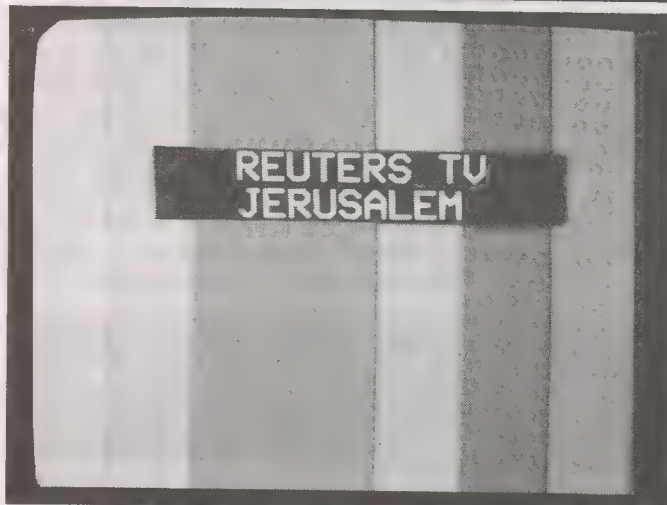
What this means for casual home observers is simply a new transponder list and a new entry on the motor drive control system to ensure your dish stops at 166E. For cable, SMATV people with fixed dishes, the worst case scenario depends upon your location. For some, mostly in Australia, it may be possible to park the dish either on 166 (PAS-8) or 169 (PAS-2) and install a pair of feeds side by side for simultaneous reception from both birds. The major challenge will be to configure the feed securing system such that both are mechanically stable - after you have peaked both for optimum signal. For others, especially those east and north-east of Australia, where the PAS-8 footprint is forecast to be significantly weaker than their present PAS-2 level, the problem is more complex. The vertical transponders are forecast to be weaker in NZ - mid Pacific - than the horizontals. Where a 3m dish now works you may need something larger. Perhaps much larger (say 6 or 7m) for PAS-8.

PanAmSat's zipped lips about who will move and who will stay is caution on their part. Those being bumped to PAS-8 gain nothing, may lose a great deal depending upon where their users are located. The programmers (such as Discovery) have limited recourse because PanAmSat has the final say as to who moves, when they move, how they move. It is unlikely we will get all of the information in "one hit"; it will dribble out a programmer at a time over the next six months. Not every programmer will move initially.

A very important side issue is the future use of PAS-8 Ku for Australia. As we are all well aware, Foxtel is in line to confirm transponder space there. Less certain - but probable none the less - is a move for the ABC Interchange from their present trio of PAS-2 Ku SCPC assignments to PAS-8. Remember - PAS-8 Ku has been designed to be "hot" into Australia, virtually non-existent into New Zealand (and north-east of Australia). In a sense, PAS-8 Ku as designed is intended to take business away from Optus, in Australia, and very little else. Another probable is moving of the PowerVu GWN Western Australia service to PAS-8 as well. Out of all of this,

AT PRESS DEADLINE

PAS-8 launch coverage was scheduled PAS-2 3939Vt, digital, but failed to appear. Why? PanAmSat blames Intelsat for "*failure to provide link out of Russia.*" Bird achieved transfer orbit position around 9AM UTC November 5th. Ahead - check out and confirmation all systems are functional.



Now that WTN has folded into APTV (APTN) there are new feeds operating including this one from Reuters Jerusalem on As2 Hz 3773/1377.

MWD - Mywaddy TV comes up "unnamed" on many IRDs - if it comes up at all (As2, 3766/1384 Vt); a good test for system sensitivity.



many new (larger) dishes will be required, thousands of existing dishes will have to be moved from PAS-2 to PAS-8 and for some this means new business opportunities. Whether

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for December 15th issue: December 3 by mail (use form appearing page 34), or 5PM NZST December 4th if by fax to 64-9-406-1083.

Update on Irdeto Hacks

An Australian reader writes, "*If Irdeto is secure, then a number of European web sites are engaging in something worse than piracy - they are selling defective merchandise!*" Fairly said. Irdeto "hack" cards claiming to pirate six Irdeto protected services (not Australia, presently) are available at pricing between US\$150 and US\$280. MK12 card reader/writers are also described (in schematic, build-it-yourself detail) on several sites. And software programmes to run the devices? Harder to identify, but there. SatFACTS downloaded "zip files" for cloning of Irdeto cards and to "block" the instruction stream used by Irdeto to turn off a particular IRD once it has been turned on with a pirate card. This note: Most software zip files are in 'exe' or execute form, are not intended for printing but rather for coupling to your card reader/writer. **Why do we tell you this?** Because we feel that if (that's IF!) Irdeto is really broken, Australian programmers are well advised to find a new security system. *Fast.* Would you build a water tank with a 100mm hole at the back that let the water out as fast as you put it in? Of course not. On the other hand, if the European web sites offering Irdeto hack cards are vulnerable to ECM (electronic counter measures), then let Irdeto put an end to this wild fire by turning the piracy cards off. Now. Soon. Before the technology spreads to Australia and hacked Irdeto cards become items in grey market commerce. Upgrading to a new level of Irdeto? That only allows hackers to resell cards anew. The web sites? Start with www.maxking.demon.co.uk, progress to www.multipage.net/multi/cards.html and finally www.wedzboyz.demon.co.uk. Within this set, links to hardware (MK12) and software. Pay attention to Volcano but understand "free software" access occurs only after you buy a hardware product.

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Sole Australian Importer of Hyundai Digital receivers

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HSS-680A Digital/Analog MPEG 2 IRD - soon to be released

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Praxis 9800ADP Digital/Analog IRD with positioner
Nextwave and Palcom Analog/Positioner Receivers
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when it is all done we will see significant new programming services remains to be seen.

ApStar 2R changes. 3849/1301 Hz in PowerVu; TVB 8 in 625 lines, Xing He in 625 lines plus both again in 525: all are CA. Baccarat Game Channel at 3836/1314Hz (Msym 3.184, FEC 3/4; also try 6.111 and 3/4). AXN analogue test card and programme promotions on 3760/1390 Hz (**Tony Drexel**, SA).

AsiaSat 2. Laos TV (Channel 3) has shut down, perhaps a temporary change, on 4143/1007 Hz. Fashion TV is new on 3796(2)/1353.8 Vt with Msym 2.533 and 3/4. FTA until January 15. Some tuning notes: This is so weak and so narrow, you have to be dead-on to load; the perfect signal to "evaluate" LNB noise figure, stability (especially stability), IRD sensitivity and (narrow) SCPC performance. Try stepping your IRD up and down either side of 3796, 1 MHz at a time. We loaded in on a Nokia 2000S at 3799 so be advised!. APTN Asia Pacific is now on 3800/1350 Hz. (see Digital Chart). Reuters TV on 3770/1380 Hz at Msym 5.632 and 3/4 on ex-WTN Moscow SCPC location. Watch for new service to appear in region of 3786/1364 Hz.

Cakrawarta S-band changes. **Steffen Holzt** (New Caledonia) reports FTA video on 'Mosaic Channel 1' service at times during October (try loading 2.536, 2.566, 2.586 and 2.656 (all Vt) with 20.000 and 5/6).

CIS/S12 at 96.5E. **David Leach** (NSW) believes there is a new to this location satellite now here, much improved signals on 3675/1475 (ORT) plus stronger than previously on 3825/1325 and 3875/1275 (all RHC). One possibility - exRimsat 142.5E, then renamed Mabuhay at 161E could have been moved to 96.5E. This could be true - Agila 3 with C -

small, medium and LARGE C and Ku antennas in stock!

Transmit and receive antennas from 1.2m to 13m (Intelsat Standard B). Linear and circular feeds (AsiaSat, Palapa, JcSat, Rimsat, PanAmSat, Intelsat and more) for transmit and receive-only applications. Receive and transmit electronics including inclined orbit tracking equipment with motor drives for elevation and azimuth to 50 tons. Complete system design, fabrication, installation + proof of performance.

P
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Limited

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This Month's Highlight "New Service"

PAS-2 eastern-Med bouquet consisting of (1) Greek Antenne 1, (2) Lebanon LBC, (3) ART Australia and (4) RAI Australia. Try PAS-2 3778 Vt, Msym 13.331 and FEC 3/4. Note: **May not be possible on 'smaller' dishes.** This feed starts out in eastern Europe and is carried by PAS-5 (not visible here) with 8 programme channels (ART America, ART - 4/Movies, LBC America, RAI America, LBC Australia, ART Australia, RAI Australia and MCM.) (Robin Colquhoun, NZ)

Ku on board is scheduled to launch to 161E sometime during first quarter of 99.

C2 changes. TPI, previously on 3840/1310H is now available only on 4180/970Vt. RCTI at 3455/1695Hz with Msym 8.000, 3/4 has been running of late (Stu McLeod, NZ) with big-time signal. CNNI has made a small frequency move - from 3980 to 3970/1180 Vt, perhaps to make room for digital package on same transponder. ANteve on 4020/1130 Vt is reported to have left the air. Powerhouse B-MAC analogue HBO Asia has finally switched off at 4000/1150 Hz.

Gorizont 21/S16 at 145E is again using 3875/1275RHC for RTR feeds (satellite is significantly inclined).

Intelsat 701 at 180E changes. TVNZ SCPC MPEG services have moved; 3793/1357 has moved to 3846/1303 while 3802/1348 has moved to 3856/1294 - all RHC.

Intelsat 704 at 66E - Tony Drexel (SA) reports "Lots of FTA sports feeds" suggesting it is worthwhile to check this satellite from time to time.

Optus B1 Vt - check 12.458 (Msym 5.207, 3/4) and 12.451 Hz (Msym 7.031, 3/4) for latest Imparja feeds to Aurora (Tony Drexel)..

PAS-2 changes. NHK Joho analogue Japanese service (4060/1090Vt) shut down October 31st as promised; now

available only with abbreviated (much shorter) schedule in FTA PAL or NTSC PowerVu MPEG at 4035/1115Hz. Have something to say to NHK Joho? Try Takeshi Araki (Executive VP) or Shinzo Hagiwara (Head, International Broadcasting) at new contact numbers - tel ++81-3-3460-6002 or fax ++81-3-3460-5188. New test cards 4189/961 Hz (Msym 6.600, 7/8). TFC (Filipino Channel) is now operating in PowerVu CA mode within "BBC Bouquet" (one of 5 channels. 2 are CA, BBC and 2 are colour bars) at 3743/1407 Vt. Mystery logging reported by Robin Colquhoun (NZ) which may become more stable by the time you read these words. Load 3805/1345 on PAS-2 Vt with Msym 19.998 and FEC 3/4 for two channel intermittent service; channel 1 IDs as 'RTL - Syzuka' while channel 2 is bars with no name.

PAS-2 Ku changes. Observer Stu McLeod (NZ) finds new NTM B/C free to air Christian radio service buried within Telstra Bendigo PowerVu at 12.300 Vt (balance of bouquet is CA).

PAS-4 changes. Nickelodeon has been testing on 4155/955Hz (Msym 24.000, FEC 1/2). Occasional FTA feeds on 3786/1364Hz (Msym 6.111, FEC 3/4).

Seventh-day Adventist reception on PAS-2 reported by many observers including David Hudson (Timaru, NZ). Paul Burton (Waipu, NZ). For latest updates check www.amcdiscovery.com.au/net98.html. At presstime, they were on PAS-2 C-band 3966.5/1183.5 Hz but with 4026.5/1123.50 Vt as an alternate move-to channel.

Thaicom 3 changes. Army TV has gone from 3600/1550 Hz; test card at 3616/1534 Vt is also gone.

Optus C1 is under construction in Japan, will go to 156E (subject to change!) late in 2000 or early 2001.

Optus Vision DTH cards scheduled to go into "test distribution" November 10th in WA; users to supply own IRD (UEC 642 or substitute), antenna system. Other Australian areas will follow as Aurora rolls out (see p. 2, here)



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AT

Sign-off

Using TV to 'Our' best advantage

Trivia quiz question.

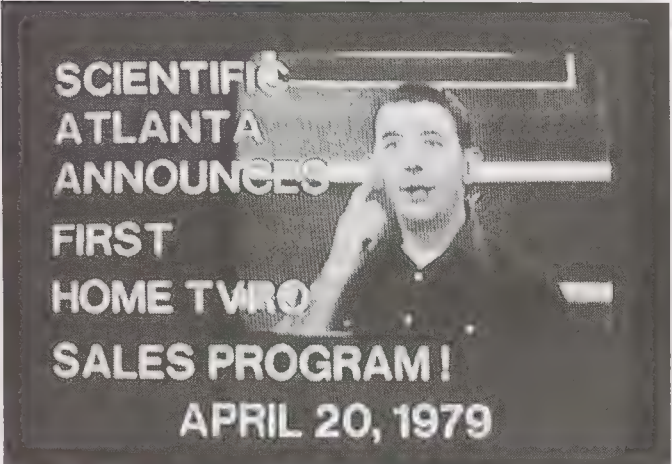
"Which firm was the very first in the world to offer a home satellite dish system to consumers?"

The correct answer would be Scientific Atlanta. In April 1979, SA announced a C-band fixed polarity and fixed position 4.5m dish with a single receiver for US\$36,000, installed. At that time, there were no *home* dish system manufacturers and the only market for commercial dishes was cable TV systems and, increasingly, broadcasters. If you wanted a dish installed in time for Christmas (1979) you were well advised to order and pay for it back in April or May because the lead time between order placement and delivery was running to 9 months.

In 1976, even before the first cable TV system installed a dish, someone began collecting videotape news reports describing the "coming satellite TV revolution." For the next 14 years virtually every event that transpired, dealing with home satellite dishes, would be recorded on 3/4" or larger videotape. By 1978, a weekly one hour TV programme named 'Satellite Journal' was being produced and distributed (via a North American domestic satellite, of course!) to cable systems all across the US and Canada. This programme looked at the latest products, interviewed leading engineers, even satellite entrepreneurs such as Ted Turner. In the programme excerpt depicted in the photo on this page, Scientific Atlanta had chosen 'Satellite Journal' to formally announce their home dish system product line and to explain why it was not a threat to established cable system operators.

This programme, and worthy successors, continued weekly on satellite through the mid-1980s. By 1979, it was locating and visiting on site pioneer home dish system builders (Taylor Howard, a professor at Stanford at his home in rural California, Bob Coleman, who created the first kitchen-table 'anybody can build this' home dish receiver in Travellers Rest, South Carolina). Virtually every pioneer who contributed to the home dish industry we know today was featured in one or more programmes in those explosive years. The theme and format followed a single formula - *"Show us what you have done and are doing, and tell us how our viewers can duplicate your results in their own home."*

When US cable TV programmers began to scramble their transmissions in 1985, a new show appeared under the tutelage of one Shaun Kenny. Shaun was a maverick in every sense of the word and proud of it. He routinely invited "pirates" (people who were busting or trying to bust the encryption routine) to his studio and some of the most unsettling, revealing and courageously frank discussions ever transmitted nation-wide by satellite followed. Kenny's weekly 15 minute segment on the "status of piracy" was called "Yellow Rain" and to open this segment the camera followed Shaun into a public men's room where he stopped in front of a urinal and



SCIENTIFIC
ATLANTA
ANNOUNCES
FIRST
HOME TVRO
SALES PROGRAM!
APRIL 20, 1979

Scientific Atlanta was "first" to offer home TVRO (dish) systems; price tag US\$36,000 installed. Major Network NBC's Tom Snyder did extensive report on the offering and early days of home dish systems in December 1979.

did what men do in urinals. The camera slowly panned away from Shaun's backside (revealing nothing private about Shaun in the process) and ended up focused inside of the urinal. There the viewer saw a General Instrument Videocipher (conditional access) receiver wedged into the porcelain receptacle. Shaun was 'watering' the receiver with - well, that's why he called it 'Yellow Rain' (if you really need this explained further - think of the saying "*Piss on*").

The trade association SPACE Pacific has recently become the custodian of more than 300 hours of 3/4" (1" and 2") videotape. Included are all of the topics cited here and probably more than 1,000 others.

Some of it is pure history, some pure entertainment, some very enlightening (such as several hours shot in Sri Lanka with British born Arthur C. Clarke, the true father of satellite communications). Early in 1999, SPACE Pacific Report will begin appearing on a satellite you can see from your home. Perhaps two satellites. Weekly, every week. SPACE Pacific Report will draw extensively from this treasure chest of videotape created from 1976 onward, while also covering in real time fashion the events and personalities of our 1998-1999 'TVRO' world. Funds for this project will come from SPACE members, and commercial suppliers to our industry; this is not a "commercial" (as in profit making) effort, but rather a self-help project involving dozens of volunteers and supporters. The programme will be free to air (of course) and in digital format (we'll tell you which satellite, transponder and what time in either December or January).

Cranking out 60 minutes of brand new television each week is a formidable task, even if much of it is merely being edited into the new S-VHS master from previously recorded material. If you think you would like to be an active part of SPACE Pacific Report, see yourself or your efforts on satellite, plan to attend the SPRSCS '99 trade show here in New Zealand March 24-27. Why? Because the entire "show" this year will be organised into a series of giant, consecutive "shoots" for TV programming use throughout 1999. Moreover, the attendance fee you pay to be at SPRSCS '99 will go straight into the SPACE Pacific Report fund to make this innovative industry activity possible.

"Yellow Rain?" The mind fair boggles.

THE 1998/9 SATELLITE EXPLOSION IN THE PACIFIC/ASIA!

One down and four to go over the next 4 months.

PAS-8 ... InSat 2E ... Gorizont 33 ... ORION 3 ... AsiaSat 3!

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SUPPLEMENTAL MATERIALS from SatFACTS MONTHLY: Order Form

- ☐ **SATELLITE TELEVISION:** The Booklet. Excellent introduction to home dish ownership for the layman, including major contributions from the father of geostationary satellites - famed science fiction writer *Arthur C. Clarke*. The perfect tool to help the satellite system seller explain home satellite TV to the layman consumer. From *SPACE Pacific*. NZ\$10/ A\$12 / US\$10, airmail.
- ☐ **COOP'S TECHNOLOGY DIGEST.** For the really serious enthusiast, investor, business person in satellite television and allied leading edge technologies. Ten issues each year, jam-packed with information you will not find anyplace else. "Coop" routinely culls more than 60 publications world-wide, terribly expensive newsletters, Internet and his hundreds of private contacts to keep you right at the leading edge of technology on the **REAL** changes underway in telecommunications. Conveniently issued near the **first of the month**, creating an excellent time-line-filler between the mid-month issues of SatFACTS. Now in the **6th year**, airmail world-wide. Normally NZ/A/US\$250 per year - for SatFACTS subscribers special **50% discounted** price of NZ/A/US\$125.

OBSERVER REPORTING FORM - Due December 5, 1998

- NEW programming sources seen since November 1st: _____
- Changes (signal level, transponder, programming content) in pre-existing programming sources since November 1st: _____
- OTHER (including changes in your receiving system): _____

NOTE: Please use P1 - P5 code when describing signal levels and receiver IF/RF settings.

Your Name _____
Town/City _____
Make/size dish _____ LNB _____ Receiver _____
Your email address _____ if you have one!

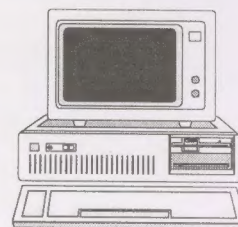
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email - DO YOU HAVE email CAPABILITY?

AN EXCITING NEW SERVICE from SatFACTS is coming. And we'll give you just one clue: "It is NOT monthly!" If you have email capability, and would like faster updates - return this card!



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☒ YES - I AM on-line with email!

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My name _____

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Town/city _____

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SOUTH PACIFIC REGION Satellite & Cable Show '99

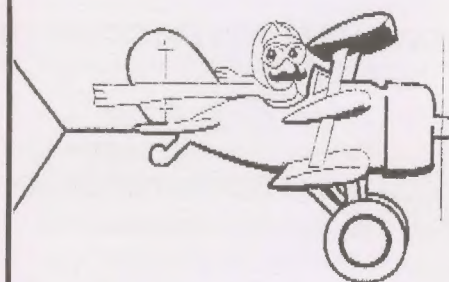
- ☐ YES - Send SPRSCS '99 Registration data
- ☐ YES - Send SPACE membership data
- ☐ YES - Send SPACE/Mark Long Certification courses data

NAME _____

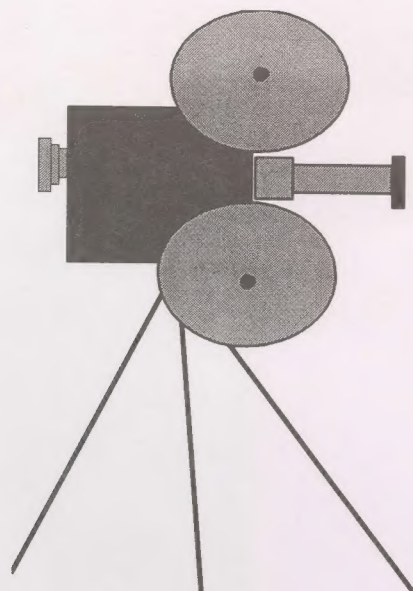
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SHOWTIME 99

SOUTH PACIFIC REGION SATELLITE & CABLE SHOW (SPRSCS) '99

FIRST CHANCE TO SIGN UP / ATTEND!

**SPRSCS
'99**

March 23 and 24: Mark Long's SPACE Pacific Digital Satellite TV Course
If your work requires that you understand digital satellite TV, **THIS** is the course for you! Two days of intensive schooling, extensive course materials, one-on-one with Mark Long.

March 25 and 26: SPACE's Satellite and Cable TV Production Time!
SPACE Pacific has secured satellite TV transmission time to educate and inform our industry members of the changes taking place in our high-tech world. Help us produce TV programme segments in 2 intensive tape to satellite production days!

March 26 and 27: Mark Long's SPACE Pacific Satellite Technician Course
The advanced course for technically inclined students who are after a broad understanding of all aspects of satellite technology (including, of course, digital). Two days, extensive course materials and one-on-one by Mark Long.

**March
23 - 27**

**IF YOU HAVE NOT BEEN TAUGHT BY MARK LONG -
YOU HAVE NOT BEEN TAUGHT!**

FULL
show
details ...

... are available in brochure form. The dates are March 23-24 and 26-27 for the twin Mark Long/SPACE tutored courses. And March 25-26 for the trade show. Complete brochure request card on page 34 or contact us at (tel) 64-9-406-0651 or (fax) 64-9-406-1083.



Precision Spun Aluminium Dishes

Antel 2.3

Single piece spun aluminium dish.

Total Diameter 2.4m
Reflector Diameter 2.3m
Pole size 102mm
F/D ratio: 0.4
Focal Distance 930mm

Gain: (>60% efficiency)

4GHz 37.7dBi
12GHz 47.2dBi
Beamwidth 12GHz 0.53°

Maximum Wind Speed

Operational 120kph
Survival 160kph

Finish:

Dish Epoxy-Polyester Powder Coated
Mount zinc plated

Weight

Polar mount 44kg
Reflector 33kg
Two mount options: Fixed & Polar



Antel 1.8

Single piece spun aluminium dish

Total Diameter 1.9m
Reflector Diameter 1.8m
Pole size 89mm
F/D ratio: 0.41
Focal Distance 740mm

Gain: (>60% efficiency)

12GHz 45.5dBi
Beamwidth 12GHz 1°

Maximum Wind Speed

Operational 140kph

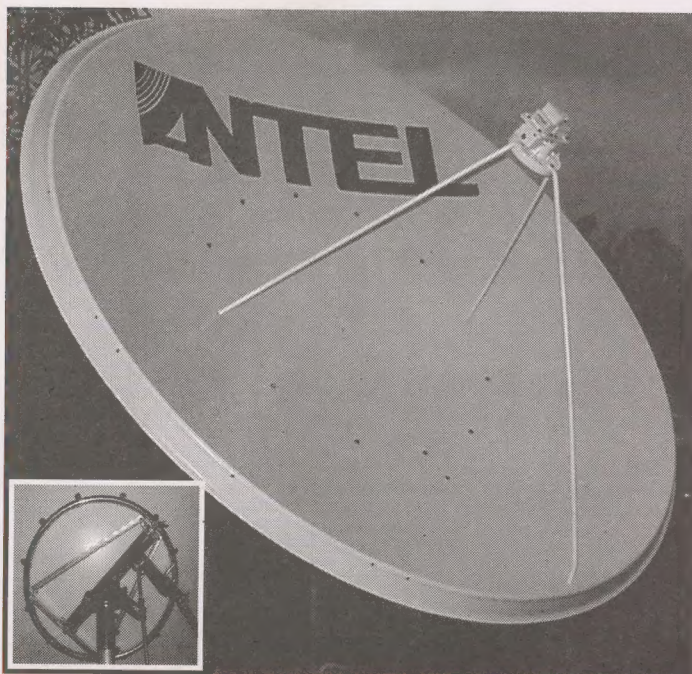
Finish:

Dish Epoxy-Polyester Powder Coated

Two mount options:

Luxury Mount (fixed)
Spun aluminium ring,
stainless steel elevation rod,
fully galvanised pole cap.

Standard Mount (fixed)
Zinc plated ring, elevation rod
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